



**US Army Corps  
of Engineers**  
New York District

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Final  
Environmental Impact Statement  
on the  
Meadowlands Mills Project

proposed by  
Empire Ltd.

May 2002

APPENDICES



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APPENDICES

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# **Appendix A**

**APPENDIX A**

**IVA METHODOLOGY AND ANALYSIS**

## **Introduction**

Appendix A consists of a description of the IVA methodology, scoring results from the MIMAC for the Empire Tract existing conditions and future conditions under both Empire Tract Alternatives D and E.

The first item in the Appendix is a background paper by Hruby et al (1995) that describes the theoretical background, development and limitations of the IVA method. The next item is a description of the IVA method as applied to the Hackensack Meadowlands as developed by MIMAC. Descriptions are provided as to how individual questions should be answered to evaluate wetlands of the HMD according to a common set of rules. The next item consists of copies of the data sheets used to evaluate assessment areas that cover the Empire Tract. Finally, copies of spreadsheets are provided that summarize comparisons between existing and future conditions for each of the IVA indicators evaluated, and for each of the development alternatives.

## ESTIMATING RELATIVE WETLAND VALUES FOR REGIONAL PLANNING

Thomas Hruby  
*Washington State Department of Ecology*  
P.O. Box 47600  
Olympia, WA 98504

William E. Cesanek and Keith E. Miller  
*Camp Dresser & McKee, Inc.*  
Raritan Plaza 1, Raritan Center  
Edison, NJ 08818

**Abstract:** A numeric method is described for establishing the relative values of wetlands in regional planning. The method combines qualitative understanding of how local wetlands function with assessments of their regional values. The method, called the IVA (Indicator Value Assessment), is a rapid assessment method based on the assumption that wetlands having specific environmental indicators perform a wetland function better than those that do not. The importance of an indicator in the performance of a function is represented numerically. First, a performance score for a wetland is calculated by developing a numeric model for each function based on the importance scores assigned to the indicators. Performance scores are normalized on a scale of 0-100, relative to the wetland having the highest performance score in the planning region. Values for wetlands are then quantified by multiplying the area of the wetland by its performance score and by a rank score representing the relative social importance of that function. The performance and value scores can then be used to assess possible impacts from different development scenarios, identify compensation needs within a planning region, and assess the potential of different wetlands for enhancement. The IVA method is being tested and used in three wetland management plans in small watersheds: the Hackensack Meadowlands (New Jersey) Special Area Management Plan (SAMP), the Mill Creek (Washington State) SAMP, and the Snohomish Estuary Plan (Washington State).

**Key Words:** wetlands, wetland functions, wetland values, impact assessment method, regional planning, watershed planning

### INTRODUCTION

Wetlands have become recognized as uniquely important components of the landscape (Mitch and Gosselink 1993). This recognition has been formalized in the United States with the acceptance of a goal at both federal and state levels to "achieve no overall net loss of the nation's remaining wetland base, as defined by acreage and function" (Conservation Foundation 1988, National Governors Association 1992). Although the goal of "no-net-loss" is easy to grasp at a conceptual level, it has proved to be very difficult to implement and achieve. Area is measured easily, but wetland functions are not.

Assessing wetland functions is not a new endeavor. The assessments, however, have usually been species-specific, short-term, and narrow in scope (Kusler 1986). The current need is for rapid, comprehensive approaches that evaluate a range of wetland functions (Kusler 1986). This need has become more critical as

resource agencies begin managing the environment at a watershed or basin scale. In such cases, several hundred wetlands may need to be assessed in a short time. Furthermore, the preparation of regional wetland management plans requires a range of information often not provided in many assessment methods. In the process of developing the three regional management plans described below, we found these needs to include

- assessments of how well wetlands within a planning area perform functions,
- assessments of the relative social value of a wetland with respect to specific functions,
- assessments of potential impacts to wetland values by development or other activities,
- numeric assessments of value that can be used to establish some requirements for compensation of unavoidable impacts, and
- assessments of the potential for restoration or enhancement of wetland functions in the planning area.

Planning decisions that affect wetlands are made daily, with and without such information. Tools that provides us with timely information to estimate values and identify trade-offs will make our decisions more efficient (Hausman 1986).

At present, a variety of rapid, comprehensive methods are available for rating or assessing wetland functions. Commonly used methods include the Wetland Evaluation Technique (WET) (Adamus et al. 1987), the "New Hampshire" method (Amman and Stone 1991), the "Oregon" method (Roth et al. 1993), the "Reppert" method (Reppert et al. 1979), and U.S. Fish and Wildlife Service's Habitat Evaluation Procedures (HEPs; U.S. Fish and Wildlife Service 1980). Methods currently available, however, do not meet many of the information needs for regional, watershed-based planning. Problems we have faced in trying to use existing methods in developing three regional plans are summarized below.

1. As described further below, some users misinterpret the type of analysis based on the title of the method. Misinterpretation of the results, or at least confusion among participants in a planning effort may follow, especially when the public becomes involved in establishing regional values of functions.
2. Models that are broad in scope, such as WET, the Oregon Method, or the New Hampshire Method often do not provide the level of detail necessary for regional management plans. Methods designed for use at a national or statewide scale are often insensitive to local variations in the performance of functions. As a result, most of the wetlands within the planning region have the same rating.

For example, a WET rating of 147 wetlands in the Hackensack Meadowlands of New Jersey resulted in a "High" rating for nutrient removal opportunity in 141 of the wetlands (US Environmental Protection Agency 1989). In another case, 125 of 128 wetlands in a small sub-watershed of the Green River in Washington (Mill Creek Basin) were rated High for "opportunity," and 76 were High for "effectiveness" in the function of floodflow alteration and desynchronization. Only 37 of the wetlands, however, are within the 100-year floodplain of the creek and can be expected to provide the highest levels of effectiveness and opportunity. The remainder of the wetlands are behind dikes or on surrounding hillsides (US Army Corps of Engineers 1991). While these ratings may be accurate for statewide comparisons, their lack of variation makes them frustrating to use in the context of basin planning.

The lack of sensitivity is complicated by the fact that indicators of performance may differ within a

state or ecoregion. In practice, general methods usually need to be modified to address local wetland conditions (Polling and McColligan, Jr. 1986, Reed 1986, U.S. Environmental Protection Agency 1989).

In addition, most general methods do not differentiate adequately between habitat functions to meet local planning needs. For example, the Oregon and New Hampshire methods include only two habitat functions, "fish" and "wildlife" (Ammann and Stone 1991, Roth et al. 1993). Local regulators and the public tend to view habitat functions with a more narrow focus, such as habitat for anadromous fish, habitat for overwintering waterfowl, or habitat for raptors.

3. Most existing methods do not provide a clear and comprehensive separation between the level at which a wetland performs a function and the perceived benefits, or values, of that function. Furthermore, methods that may be clear but that only provide a simple determination of performance may not be enough for planning or regulatory purposes (Kusler 1986).

Meeting the need for a comprehensive approach has been complicated by the confusion that exists between the concepts of wetland functions and wetland values. Functions have been defined as the physical, chemical, and biological processes or attributes that contribute to the self-maintenance of wetland ecosystems (Brinson 1993a, Walbridge 1993). The values of wetlands, on the other hand, are estimates, usually subjective, of the worth, merit, quality, or importance of these functions to humans (Richardson 1994). The word "values" imposes an anthropocentric focus by suggesting that a wetland process provides a benefit to humans.

Although functions are defined as wetland processes, they are usually chosen in terms of the value they provide to society. For example, the "life-support" functions of wetlands are described in terms of fish habitat, waterfowl habitat, etc. These are all functions important to society. Rarely do we see the life-support functions described in terms of habitat for detritivores, insects, or annelids. We are, *de facto*, making a value judgment just by choosing which functions to assess.

The value judgments made in choosing functions are often inherent, since the intermediate step of explicitly identifying which benefits to society are to be assessed is omitted. Because this step is often omitted, users of assessment methods often equate the value of a wetland with the level at which a wetland performs a specific function. The term "functional value" has been coined to represent wetland values in terms of performance, but this seems to confuse the issue further, rather than clarifying it.

The confusion between function and value also has

been compounded by the word choices used in wetland analyses. Methods for organizing our knowledge about wetlands have been called *classifications, categorizations, characterizations, ratings, rankings, assessments, and evaluations*. Unfortunately, authors of wetland "assessment" methods have often been sloppy in the use of these terms. As a result, regional watershed planning teams are often baffled as to the methods that may be appropriate for meeting their planning needs. For example, the "Wetland Evaluation Technique" by Adamus et al. (1987) suggests that the method will establish values for wetlands. The method, however, only provides a rating—a classification based on a position of High, Medium, or Low on three scales (social significance, effectiveness, and opportunity).

In this paper, we describe the conceptual framework for a wetland assessment method that attempts to address some of the information needs of regional wetland management plans. Our focus is to describe a standard process by which regional models of performance and value can be developed, rather than the actual numbers. The process described could also be used to modify existing methods to meet local planning needs.

The method, called the Indicator Value Assessment (IVA), provides a separate estimate of the performance of a socially important function within a wetland as well as an estimate of the relative value of that wetland within the planning region. The method, however, does not provide a measure of absolute level of performance or value. Establishing such numbers requires a quantitative understanding of direct cause and effect relationships between environmental variables and functions, an understanding that is not currently available for most wetland processes. The IVA method is presented with the understanding and expectation that it will be supplanted by more quantitative methods as they are developed.

The IVA was first developed to assess performance and estimate values of wetlands for the Hackensack Meadowlands Special Area Management Plan (SAMP) in New Jersey. Since then, the method has been used in the Mill Creek Special Area Management Plan and the Snohomish Estuary Wetland Management Plan, both in Washington State. One hundred thirty-nine separate wetlands were assessed for the Meadowlands SAMP, 128 for the Mill Creek SAMP, and 362 for the Lower Snohomish River plan. These three planning efforts are ongoing projects, and the results reported here represent the work completed to date. Estimates of how well wetlands perform functions and the relative values of these functions have been completed for all three projects. In addition, the impacts to wetland values of different regional "development" alternatives have been assessed for the SAMPs. Similar as-

sessments are yet to be completed for the Snohomish Estuary Plan. Assessments of compensation needs and the enhancement potential of existing wetlands also remain to be completed for all three projects.

## GENERAL DESCRIPTION OF THE IVA METHOD

### Estimating Performance of Wetland Functions

The estimate of how well a wetland performs a function is based on the assumption that wetlands having specific environmental variables are better at performing a function than those that do not. These variables, known as indicators, are those that have a documented or hypothesized association with particular wetland functions. The association between an indicator and a function is strong enough that the presence of the indicator in a wetland is an indication that the function is also being performed to some degree (Kentula et al. 1992). Indicators are used in one form or another in most current rating and assessment methods (e.g., Reppert 1979, Adamus et al. 1987, Amman and Stone 1991, Roth et al. 1993).

In the IVA method, the relationships between indicators and the performance of functions are established for each planning region or watershed and converted to a numeric model. Three types of numeric representations are developed for indicators.

- 1) Indicators that are associated with an incremental increase in performance are scored as positive integers (i.e., 1,3,9) and summed (additive indicators).
- 2) Indicators that are associated with significant increases in performance are scored as numbers greater than "1" and used to multiply the sum in #1 above (multiplicative indicators).
- 3) Indicators that are associated with decreases in performance are scored as numbers less than "1" and also used to multiply the sum in #1 above (fractional indicators).

The three types of indicators are described in more detail in the following section.

The general form of the model for estimating performance is:

level of performance = (sum of scores for additive indicators) • (product of multiplicative and fractional indicators)

$$\text{SCORE} = \left( \sum_{i=1}^n (P_i)(R_i) \right) \left( \prod_{j=1}^m (P_j)(M_j) \right)$$

Table 1. Functions assessed in the three wetland management plans and the number of indicators used for each function.

Meadowlands	Number of Indicators	Mill Creek	Number of Indicators	Lower Snohomish	Number of Indicators
Nutrient uptake	69	Nutrient uptake	37	Nutrient uptake	14
Retention of toxics	61	Retention of toxics	44	Retention of toxics	33
Export of production	62	Export of production	28	Export of production	41
Floodflow alteration	3	Floodflow alteration	44	Sediment stabilization	26
Recreation	8	Sediment stabilization	47	Recreation	35
Conservation potential	78	Groundwater discharge	6	Channel stabilization	6
				Access to deep water for transportation	12
Habitat Functions					
Aquatic species	88	Aquatic species	69	Anadromous fish	46
General fish	72	Anadromous fish	69	Resident fish	46
General waterfowl	85	Resident fish	74	Migratory bird	72
General wildlife	100	Migratory bird	92	Overwintering bird	73
		Resident bird	96	Breeding bird	79
		All other species	98	Invertebrate	86
				Reptile and amphibian	84
				Mammal	80

Where:

- $P_{ij}$  = indicator presence (0 or 1)  
 $R_i$  = indicator score (additive, #1 above)  
 $M_j$  = indicator score (multiplicative and/or fractional, #2, #3 above)

#### Estimating Values of Wetlands

The value of a wetland in terms of a specific function is calculated by multiplying the performance score for a function by the area of the wetland and by a number representing the relative social importance assigned that function. The mathematical expression of the value of a wetland relative to a specific function is:

$$\text{value} = \text{performance score} \cdot \text{area} \cdot \text{social importance of function}$$

Note that we use the term "importance" of a function in lieu of "value" of a function to avoid confusion with the concept of "value" of a wetland. The valuation process in the IVA involves two steps: the first assigns relative importance to functions and the second calculates the value of specific wetlands relative to the functions they perform. To keep the two steps separate, we will use the term "importance" for functions and "values" for wetlands.

The following sections describe the procedure for estimating wetland performance and values using this approach. The four steps for estimating performance of functions and two steps for estimating wetland values are illustrated with examples from the three planning efforts underway.

#### SPECIFIC STEPS FOR USING THE IVA METHOD

##### Step 1: Identifying Wetland Functions

The first step in using the IVA method is to identify wetland functions that are present and socially relevant within the planning region or watershed. The choice of functions must be a result of consensus among local groups and agencies with permit or other legal authority over local wetlands. Implementing wetland management plans at the regional or watershed scale requires the cooperation of all interested parties (Broadhurst and Tanner 1994).

The value judgments inherent in choosing which functions to assess are thus made explicitly and do not depend on the list of functions developed for some other purpose. The choice of functions will depend on the goals of a project and the specific wetland processes valued in the planning region. Ten functions were identified and evaluated for the Meadowlands SAMP, 12 were chosen for the Mill Creek SAMP, and 15 for the Snohomish estuary study (Table 1). Only three of these functions were the same in all three planning efforts.

##### Step 2: Identifying Indicators For Each Function

Once functions are chosen, the next step in the process is to identify the indicators of functions that are important within the planning region. An initial list of indicators can be compiled from existing methods. The list, however, often needs to be modified with indicators that represent local conditions. In all three plan-

ning efforts that used the IVA, the initial list was derived from the "predictors" used in the WET. Additions and deletions to the list were made by a committee of local wetland experts. For example, many wetlands in the Snohomish estuary have had some of their functions impaired by the presence of wood waste from local pulp and lumber mills. As a result, "presence of wood waste on the substrate" was added as an indicator to address this local condition.

In developing the initial list of indicators, we found that approximately 200 WET predictors could be used to assess functions. Of these 200, 133 were used in the Mill Creek SAMP, and 56 were used in the Snohomish estuary plan. For the Mill Creek SAMP, the WET list was supplemented with 22 indicators used in the Washington State Wetland Rating System (Washington State Department of Ecology 1993) and two were added to reflect special local conditions. In the Snohomish estuary plan, the list from WET was supplemented with 17 indicators used in the Washington State Rating System, and 61 other indicators that reflect special local conditions. In the Meadowlands SAMP, 196 indicators were used from a WET model that had already been modified to reflect local conditions (U.S. Environmental Protection Agency 1989).

As indicators are identified, they are assigned to a function or functions. One indicator may be associated with more than one function, and individual functions may have different numbers of indicators associated with them. Table 1 summarizes the number of indicators that were identified for each function in the three planning studies.

It may prove useful in larger watersheds to first classify wetlands by their hydrogeomorphic characteristics (Brinson 1993b) and develop lists of indicators appropriate for each class. This approach has not been tested but is mentioned here because some planning efforts may encompass larger areas.

Assembling a knowledgeable scientific committee is critical for developing scientifically reasonable IVA models. Knowledge of the quantitative relationships between specific wetland indicators and the performance of functions is limited. Most of our knowledge is qualitative and correlative. In the absence of quantitative data, many judgments of performance need to be based on the "best professional judgment" of experts who have knowledge of the wetlands in the planning region or watershed. To eliminate as much subjectivity as possible, the judgment of a group of experts, rather than an individual, is used.

### Step 3: Assigning Scores To Indicators

Once identified, each indicator of function is assigned an additive, multiplicative, or fractional score

based on the known or inferred relationship between the indicator and the performance of a wetland function.

*Additive Indicators.* Most indicators used are linked with incremental increase in performance and are scored as "additive" indicators. These are ranked based on three levels of importance related to the performance of a function: 1) *secondary* indicators are variables that have a weak link with the level at which a function is performed by a wetland; 2) *good* indicators are variables with a stronger, or better documented, link with performance; and 3) *very good* indicators have the strongest, or best documented, link. Indicators may be linked with more than one function, and one that is a "secondary" indicator of one function, may be ranked a "very good" indicator of another.

For example, in the Mill Creek basin, areas of permanent flooding were considered a "very good" indicator of a wetland that performs effectively as a habitat for aquatic organisms because many species need to be submerged for their entire life cycle. A dense understory edge at the wetland/upland boundary, on the other hand, was considered only a "secondary" indicator of performance for this function. Such an edge does provide some shade and protection for aquatic species (Adamus et al. 1991), but it was not considered a very important habitat element in this basin. Many of the ponds in the floodplains of the creek are in grazed or abandoned pastures without a dense understory edge. Local knowledge suggests that these ponds, however, do provide good habitat for some aquatic species in the absence of an understory edge (e.g., observations of feeding by Great Blue Herons (*Ardea herodias*, L.) and other predators of aquatic species).

The rankings are quantified by assigning a *rank score* to each level of importance. Rank scores can be based on arithmetic or geometric progressions. A geometric progression was chosen for all three plans. A secondary indicator was scored a [1], a good indicator was scored a [3], and a very good indicator was scored a [9]. This progression was chosen after testing several different options (1,2,3; 1,3,5; and 1,3,9). The 1,3,9 scoring produced relative scores for performance that best matched the overall qualitative assessment of performance made by the members of the three scientific committees during their field visits.

Examples of rank scores assigned to indicators for different functions are given in Table 2. The table lists 14 indicators that were common to the two SAMPs. The difference in scoring is an example of how the assessment of performance can be tailored to reflect local conditions. For example, the dominance of emergent vegetation in a wetland (indicator #7 in Table 2)

Table 2. Examples of scores for 14 indicators used in the Mill Creek and Meadowlands SAMPs. Scores are left blank when indicator was not considered to be associated with a function. Indicators are abbreviated and do not reflect the full description used to collect data.

	Function				
	Habitat for Aquatic Species	Anadro- mous Fish Habitat	Migra- tory Bird Habitat	Sediment Stabilization	Toxicant Reten- tion
Mill Creek Samp					
1 Downslope drop > upslope rise				0.8	
2 Surface flow through permanent inlet	9	9	1	0.9	1
3 Surface flow through intermittent inlet	3	9	1	0.9	1
4 Outlet < one third average width				1	1
5 Dominant veg: forested and needle-leaved evergreen		3	1	1	
6 Dominant veg: forested and broad-leaved deciduous		9	3	1	
7 Dominant veg: emergent and persistent	9	3	9	3	1
8 Dominant veg: emergent and non-persistent	3	1	1	1	
9 Vegetation-water interspersion: intermediate	1	1	1	1	1
10 Vegetation-water interspersion: mosaic	9	3	3	1	1
11 Channel flow spreading		1	3	3	3
12 Upland-Wetland edge irregular		1	1	1	1
13 Balance of sun and shade					
14 Wetland contains a channel	3	3			
	Function				
	Habitat for Aquatic Species	General Fish Habitat	General Water- fowl Habitat	General Wildlife Habitat	Toxicant Reten- tion
Meadowlands Samp					
1 Downslope drop > upslope rise	Not a relevant indicator in the Meadowlands region				
2 Surface flow through permanent inlet	3	3	3	1	1
3 Surface flow through intermittent inlet	1	1	1	1	1
4 Outlet < one third average width					1
5 Dominant veg: forested and needle-leaved evergreen				1	
6 Dominant veg: forested and broad-leaved deciduous				1	
7 Dominant veg: emergent and persistent	1	1	3	1	3
8 Dominant veg: emergent and non-persistent	1	1	3	1	
9 Vegetation-water interspersion: intermediate	3	3	3	3	3
10 Vegetation-water interspersion: mosaic	9	9	9	9	3
11 Channel flow spreading	3	3	1	1	9
12 Upland-wetland edge irregular	1	1	1	1	
13 Balance of sun and shade			1		
14 Wetland contains a channel	1	3	1	1	

was considered to be a very good indicator of performance for the function "habitat for aquatic species" in the Mill Creek basin but only a secondary indicator in the Meadowlands. Most of the wetlands in the Mill Creek basin are seasonally flooded and poorly drained. The scientific committee concluded that areas dominated by the emergent species in these wetlands are the ones that are flooded and provide the local habitat for aquatic species. In the Meadowlands, on the other hand, the local scientific committee concluded that most of the habitat for aquatic species is provided in the ditches, channels, and open pools of a wetland. The

presence of a dominant cover of emergent species was considered only a secondary indicator of performance in that the plants provide detritus to the aquatic food web.

*Multiplicative Indicators.* In some cases, an indicator may be considered so important in the performance of a function that an "additive" rank score does not reflect its importance. In such cases, the indicator is assigned a "multiplicative" score that is greater than one. In the absence of quantitative experimental results, the value of the multiplicative score is again

assigned by group consensus based on a qualitative assessment of importance. The range of "multiplicative" scores assigned to an indicator was between  $\times 1.2$ – $\times 10$  in the three wetland management plans under development.

For example, the presence of dendritic channels in the wetlands of the Snohomish estuary were considered to be an extremely important indicator that a wetland is performing as habitat for anadromous fish, non-anadromous fish, and invertebrates. As a result, this indicator was assigned a "multiplier" score of two. Wetlands having a dendritic channel system were considered to perform these functions twice as well as wetlands without a dendritic system and had their sum of "additive" indicators multiplied by "2." Since there is no experimental evidence from the estuary that can be used to establish the actual numeric value of the multiplicative factor, the choice was based on the best professional judgment of the scientific committee.

*Fractional Indicators.* Some environmental variables are associated with the impairment or decrease in performance of wetland functions. These are assigned a "fractional" score based on an assessment of how much they decrease performance. The range of values used in the three planning efforts was  $\times 0.001$  to  $\times 0.95$ . The value of 0.001 is used in place of "0" for indicators that are linked to the absence of a function (zeros confuse most computerized spreadsheets on which the scores are calculated). Negative scores were not used because heavily impacted wetlands with few positive indicators might end up with a negative performance score. A negative performance score does not make conceptual sense since the absence of a function should be mathematically represented as a zero.

For example, the function of sediment stabilization in wetlands of Mill Creek basin was considered to be impaired if the downslope rise was greater than the upslope rise (indicator #1 in Table 2). This indicator was local evidence of a relatively shorter residence time for water. Such wetlands were considered to be less effective in trapping sediment than those on flat terrain or those in which the slopes were equal.

#### Step 4: Estimating A Performance Score

An overall *performance score* for a function is calculated by summing the rank scores of the "additive" indicators and multiplying that number by the product of the "multiplicative" and "fractional" indicators. This produces a numeric model of performance for each function. In practice, these models are not written down but appear as commands in a computer spreadsheet.

Performance scores for each function are normalized relative to the highest score achieved in the planning

region. Thus, the wetland with the highest performance score is assigned a score of 100, and all others are calculated relative to this. Normalizing the score simplifies the visual presentation of the data and reduces the tendency for using the scores as measures of "absolute" performance.

#### Step 5: Establishing The Relative Social Importance of Functions

Most wetland management plans that include restoration, creation, or enhancement on a regional scale will involve discussions of possible trade-offs between functions (for a documented case, see City of Eugene 1992). Such discussions are facilitated when the wetland assessment method used provides some way to establish the relative social value of wetlands as well as their performance of functions. Since importance represents an anthropocentric assessment of functions, this determination is best made by a group that includes all parties interested in the wetland resources of the planning area. Assigning importance to functions should be done independently of the estimates of actual performance and by a group that includes more than just the scientists.

One way to establish the relative importance of functions is to rank them and assign a numeric score to that rank. For example, the function of anadromous fish habitat might be ranked twice as important as habitat for non-anadromous fish in a watershed where salmon are considered to be a critical resource. Habitat for migratory birds and resident birds may be considered to be of equal importance, but both less important than habitat for resident fish. In this case, the importance scores for the four functions might be: anadromous fish habitat = 4; resident fish habitat = 2; migratory bird habitat = 1; resident bird habitat = 1.

Another option in ranking functions is to combine several functions into function groups. This second option was chosen in the three planning efforts described here (Table 3). Combining functions into function groups simplifies the valuation process by breaking it up into two steps. The first establishes the relative importance of each function within a function group, and the second establishes the relative importance between function groups.

Either way, the locally most important functions can be highlighted. In the Mill Creek basin, the four groups of functions (fish habitat, habitat for all other non-fish species, floodflow alteration, and water quality improvement) were ranked equally. This meant that the four functions grouped under Fish Habitat were considered to be as important as the six functions representing the habitat for all other wildlife (Habitat for

Table 3. Wetland function groups assigned equal importance in the two special area management plans and their associated functions.

Function Group	Hackensack Meadowlands Function	Function Group	Mill Creek Function
Social significance	Recreation Floodflow alteration Conservation potential	Floodflow alteration	Floodflow alteration
		Fish habitat	Anadromous fish habitat Resident fish habitat Export of primary production Groundwater discharge
Wildlife habitat	Aquatic diversity and abundance General fish habitat General waterfowl habitat General wildlife habitat Export of primary production	Habitat for non-fish species	Groundwater discharge Export of primary production Migratory bird habitat Resident bird habitat Aquatic species habitat Other species habitat
			Sediment stabilization Sediment toxicant retention Nutrient retention/ transformation
Water quality improvement	Nutrient retention/Transformation Sediment toxicant retention	Water quality improvement	

Non-Fish Species, see Table 3). Floodflow alteration, a function group with only one function, was of the same importance as the four fish habitat functions and the six other wildlife habitat functions. In Hackensack Meadowlands, on the other hand, fish habitat was not singled out. It was considered only one of the five functions in the wildlife habitat group. Membership of a function in a group need not be unique. In the Mill Creek SAMP, two functions (export of primary production and ground-water discharge) were each assigned to two groups because they were considered important functions in both.

The valuation process just completed for the Snohomish River estuary (October, 1994) provides an excellent example of how complex and serious the valuation issue can be in the context of regional planning. The valuation committee, with members from the different "users" of the estuarine wetlands, is assigning functions to function groups and importance to functions and groups based on the location of a wetland in the urban and agricultural landscape. For example, shoreline sediment stabilization was included in the group of socially significant wetland functions in an urban/industrial and in an agricultural landscape but not in relatively undisturbed, "pristine" areas. In addition, the group of five wildlife functions is being rated as three times more important than the group of socially significant functions in such "pristine" areas. In urban/industrial areas, however, the converse is true—socially significant functions are being rated at three times the habitat functions.

#### Step 6: Estimating Value of Wetlands

The *value score* of a wetland with respect to a function is calculated by multiplying the performance score for the function by the area of the wetland and by the relative importance assigned that function. Since performance scores and importance ranks are non-dimensional numbers, value is reported as "acre-points" or "hectare-points." Examples from the planning studies (e.g., Table 4) are reported in "hectare-points", but in practice all three planning documents being drafted use "acre-points." Some of the planning agencies involved in the regional plans as well as the general public have not yet adopted the metric system.

In the case where functions are grouped, value is calculated using a two-step process. First, a "group" score is calculated by summing the normalized performance scores of the relevant functions. This sum is again normalized to the highest scoring wetland within each group. If the functions in a group are not considered to be of equal importance, the performance scores are first multiplied by the appropriate rank score for the function. For example, in the lower Snohomish estuary, the retention of toxics by wetlands in an urban setting was considered to be twice as important as either nutrient retention or sediment trapping. Thus, the performance score for the retention of toxics was doubled in calculating the group score for the water quality improvement functions.

This two-step valuing process may seem cumbersome at first, but we found that it simplifies the val-

uation effort. Both the scientists' and citizens' groups wanted to develop performance models for specific functions rather than for general groups such as wildlife habitat, water quality improvement, or social significance. Establishing a consensus on the relative importance for 10 to 15 separate functions, however, was an extremely difficult task. It was easier to first establish the relative importance of the major function groups and then establish the relative importance of functions within a group.

## DISCUSSION

### Basic Approach to Numeric Modeling

The validity of scoring performance based on the number and kind of indicators present may be questioned given the current lack of quantitative information. The modeling approach used in the IVA, however, is the same as that found in many current wetland assessment methods and their adaptations (e.g., see Reppert 1979, Hollands and McGee 1986, Ammann and Stone 1991). The structure of these models follows the "mechanistic" approach to model development described for HEPs (U.S. Fish and Wildlife Service 1981). First, indicators are chosen that represent key features known to affect wetland functions. Second, the relationship between an indicator and a function is quantified. Third, the indicators are aggregated through a mathematical operation to yield a single numeric description of performance or "functional value." In these types of models, "Assumptions about how model variables (i.e., indicators) cumulatively affect habitat suitability (i.e., performance of functions) must be made and converted into mathematical language" (Terrell et al. 1982).

As with other methods, the scores or weighting factors used in the IVA usually reflect perceived importance and the best professional judgment of the author(s) rather than the results of rigorous experiments. This approach is necessitated by the lack of quantified relationships between environmental variables and functions that can be used at the scale of most wetland planning efforts. Unfortunately, conversion to numeric scores does not decrease the subjectivity of the original assumptions, but it does allow different users to arrive at the same scores. Current understanding of wetland processes does not let us to go much beyond quantifying our subjectivity. The IVA method tries to minimize the potential problems with this subjectivity by using the best local information available in addition to published information.

Mechanistic models have several attributes that make them useful tools for environmental planning. Paraphrasing Terrell et al. (1982), these attributes are as

follows: 1) the basic model structure can be used to integrate a wide variety of existing knowledge and hypotheses concerning relationships between indicators and performance of functions; 2) the model structure enables planners to easily track changes that have the most effect on performance; and 3) the models can readily be modified to incorporate new information on the relationships between indicators and functions.

The major limitation of mechanistic models is that the accuracy of their output cannot be directly verified because real values for levels of performance do not exist. This justifiable criticism does not, however, take into account the difference in requirements between science and planning (Romesburg 1981). The time frames of planning often require the use of information that may not be experimentally validated. Mechanistic models, however, provide a means to display and integrate logical, but scientifically untested, cause and effect relationships. Such models cannot be "proven" right or wrong, but the reliability of the output can be tested by reformulating the assumptions and examining the new model behavior relative to how well it meets the goals of the planning effort (Terrell et al. 1982).

The output of the IVA model is similar to that in the New Hampshire method (Amman and Stone 1991). Our scoring of indicators is analogous to the "Functional Value Index"; the performance score is analogous to the "Average Functional Value Index"; and our value score in "hectare-points" is analogous to the "Wetland Value Units." The difference between the two is in the algorithms used. In the IVA, indicators are additive or multiplicative, whereas in the New Hampshire method, indicators are all assigned values between zero and one, and the performance is measured as an average of these values.

The first reason for a different mathematical approach is that assessments of enhancement potential are simplified by having the indicators of degradation be fractional multipliers. The performance of functions in many wetlands could be improved if disturbances are removed, and it is important to represent this numerically for planning purposes. Neither the HEP nor the New Hampshire method provide an easy way to quantify changes in performance that result from removing disturbances.

The second reason for using an additive and multiplicative approach in calculating scores is more philosophical. Constraining the performance scores between 0 and 1, as is done in the HEPs and the New Hampshire method, assumes that we are able to specify in advance the highest level of performance within a region. Furthermore, the highest level of performance is achieved by only one unique set of indicators. In practice, however, we feel that wetlands can achieve high levels of

Table 4. Assessment of impacts of different planning alternatives in the Mill Creek SAMP. Numbers shown are "hectare-points."

	Total Resource	Impacts		
		Alternative 3	Alternative 4	Alternative 5
Hectares	416	129	210	388
Impact as % of total		31%	50%	93%
Function group				
Floodflow alteration	16,709	738	9681	15,424
Impact as % of total		4%	58%	92%
Fish habitat	12,002	1053	7404	10,808
Impact as % of total		9%	62%	90%
Habitat for non-fish species	27,275	7633	14,419	25,349
Impact as % of total		28%	53%	93%
Water quality improvement	29,544	8498	14,822	27,541
Impact as % of total		29%	50%	93%

performance through different combinations of indicators, some that may be mutually exclusive and some that are not.

Scoring different combinations of indicators equally highly is especially important in larger watersheds. Wetlands in different geomorphic settings may perform the same function well but for different reasons. Methods that rely on a scoring system constrained between 0 and 1 would have to incorporate a number of "and/or" logic statements in their numeric model to accommodate this. We found it simpler to expand the list of indicators that might be present in all geomorphic settings. Wetlands in the Snohomish estuary were identified as being either "mudflats" or "vegetated." The "mudflat" wetlands were assessed for some of the same functions as the "vegetated" ones but using a list of indicators modified to reflect the differences in performance between the two categories of wetlands.

#### Using the IVA to Meet Regional Planning Needs

A wide range of information about wetlands and their functions is needed to develop regional wetland management plans. Information is needed on how well wetlands perform important functions, their relative values, the potential impacts of development alternatives, how unavoidable impacts should be compensated, and the potential for some wetlands to be restored or enhanced. The detailed description of the method above presents how the IVA method is used to estimate the performance of wetland functions and their relative values. The following section describes how we are using the IVA to meet some of the other information needs for regional planning.

The need for assessing the potential impacts to wetlands under different development alternatives is met

by incorporating the performance and value scores in a geographic information system (GIS). Wetlands are mapped and different values such as wildlife habitat can be highlighted (Figure 1). The impact of "removing" individual wetlands or parts of wetlands on the total resource in the watershed can be estimated for each function or group of functions. The "hectare-points" lost in a wetland can be compared to the total "hectare-points" in the watershed or planning region. Furthermore, the IVA assessments can be used to identify the high value wetlands that should be protected regardless of local development needs. Unavoidable impacts can then be re-directed to lower value wetlands.

In the Mill Creek SAMP, for example, one planning alternative (Alternative 4) is based on selecting all wetland areas within 91 meters (300 feet) of existing roads as potential development sites. Another one (Alternative 5) assumes that all wetlands outside a 61 meter (200 foot) corridor along the main streams will be developed. In a third alternative (Alternative 3), wetlands are considered suitable for development if they are outside the 100-year floodplain and have performance scores for the Fish Habitat, Other Species Habitat, and Water Quality Improvement function groups that rank in the bottom 2/3 of the relative scores for the region. The impacts of each of these alternatives were calculated in terms of the hectare-points lost, and the percentage of the total resource this represents (Table 4). The goal of this process is to synthesize this information and identify a preferred development plan that minimizes unavoidable impacts to wetland values and meets regional development needs.

The issue of compensation for unavoidable wetland impacts is more controversial but needs to be addressed if regional wetland management plans are to

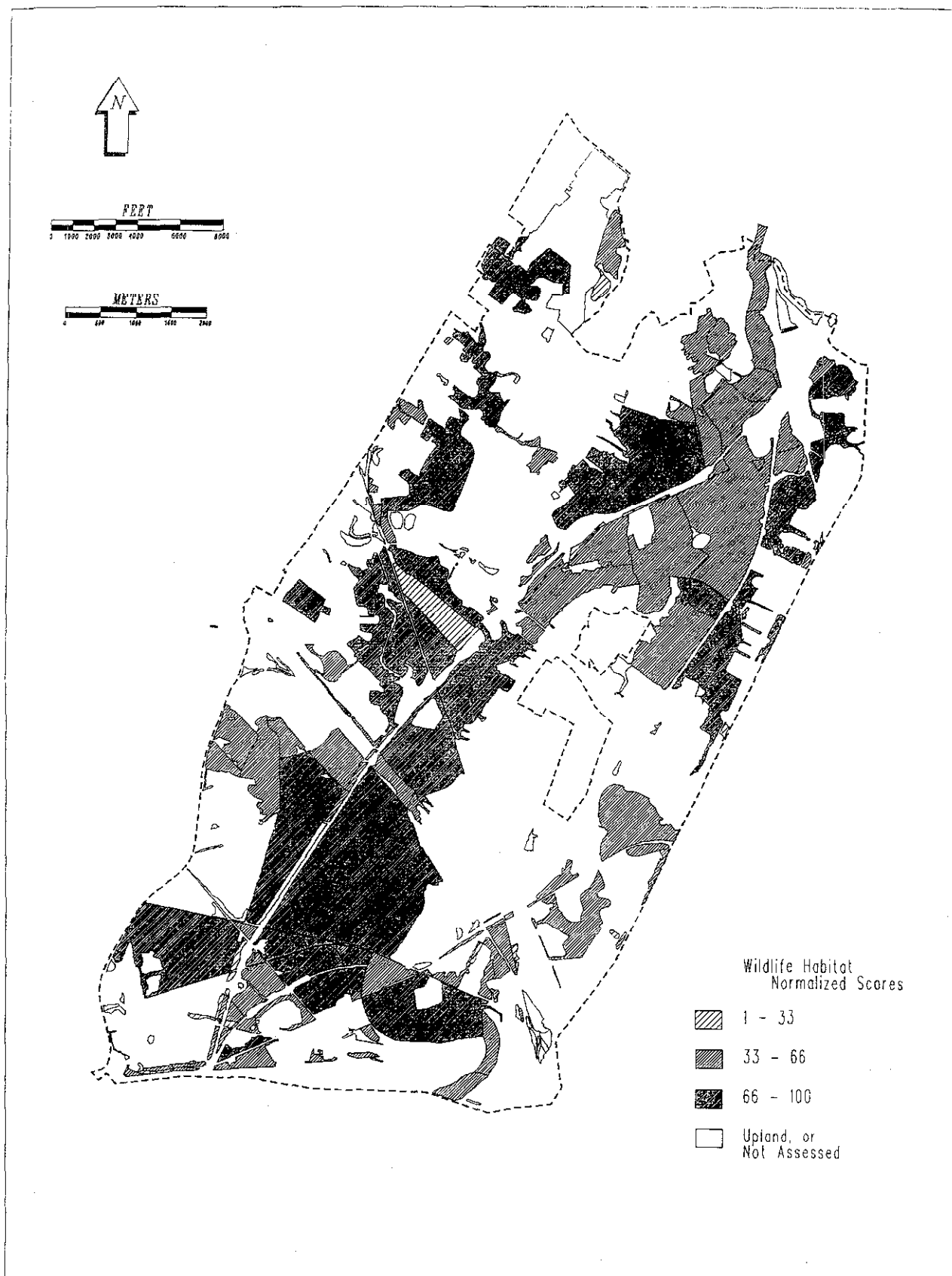


Figure 1. Map of wetlands in the Hackensack Meadowlands and their relative score for the wildlife habitat group of functions.

be effective. The numeric estimates generated through the IVA provide a means for quantifying the amount and type of compensation needed. At a planning level, impacts to functions or groups of functions are assessed in terms of the "hectare-points" lost. These values must be replaced by function, usually at a ratio of hectare-points that is higher than one to one. Compensation is addressed in the three regional plans being developed by identifying areas that can be restored or enhanced to compensate for the impacts to wetland functions.

Attempts, however, to add all the value scores for functions, or groups of functions, to obtain a single value for a wetland are not appropriate because hectare-points for functions are not interchangeable. Too much information about functions is lost if the scores are combined. The only comparison that can be made using the IVA is that a hectare-point for one function represents approximately the same value to society as a hectare-point for another function. As an analogy, consider an apple and an orange. One may value the two fruits the same, but they cannot be combined to form a single larger fruit. By agreeing to value them the same, however, it is possible to compensate for losing an apple by "creating or restoring" an orange without feeling cheated.

For example, the enhancement of fish habitat in the Mill Creek basin is considered a primary goal for the region (U.S. Army Corps of Engineers 1994). To address this need, the draft management plan is recommending that some exchanges between group functions be allowed when compensating for unavoidable impacts. At present, the draft recommendation is to allow the replacement of up to 25% of the value of Habitat for Non-Fish Species (in hectare-points) that may be lost through unavoidable development with 1.25 times the hectare-points of Fish Habitat. The ratio of 1.25 is included to compensate for potential risks in the compensatory activities and to account for some of the uncertainty associated with the qualitative judgments made in developing the IVA.

The IVA method is also being used to assess the potential for restoration or enhancement in the three planning regions and to link this to the compensation plan. Areas that might be suitable for restoration or enhancement are re-assessed for the presence of new or changed indicators based on the proposed activities. The change in the value score for each function or group of functions represents the potential for compensation at a site.

An inherent risk with this approach is that compensation plans will be tailored to maximize points rather than focusing on regional needs. To avoid this problem, restoration/enhancement guidelines for all sites are being developed as part of the regional plans. These

guidelines are focused on meeting local needs for improvements to wetland functions. Any proposed enhancement to an existing degraded wetland, restoration of previously filled wetlands, or creation of new wetlands, will be constrained to the specific strategies and tactics outlined in site-specific guidelines.

Assessment methods also need to be rapid and relatively inexpensive to be usable in developing regional wetland management plans. Our experience with the IVA has been that it takes 3 to 5 days for the scientific committee to develop the scoring models and another 2 to 3 meetings of an advisory committee to establish the relative importance of functions. The actual data collection takes less than 3 hours per wetland and is best done by 2 or 3 people together. The presence of many indicators can be determined in the office from aerial photographs and local maps. Altogether, the level of effort required to assess wetlands using the IVA is approximately the same as that required to use other "rapid" assessment methods.

#### Limitations of the IVA Method

The IVA method does not address possible synergistic relationships among different indicators and performance. These relationships are known to exist, but the information is only qualitative. This valid criticism is difficult to address in any general or regional valuation method at present. Our knowledge about the relationship between many environmental characteristics and functions is qualitative and correlative, and it is not reasonable to add an additional level of interactions at this stage: one that includes multivariate, non-linear algorithms, and for which we have little information.

Another potential criticism is that scientific data are presently not adequate to substantiate separations between wetlands by one point out of a 100 (Adamus 1986). We agree with this and do not suggest the IVA be used in this manner. The reason for scoring wetlands on a finer scale is that it helps identify breaks in the data that can be used in the planning effort. Decisions to include or exclude wetlands from planning alternatives can be based on the distribution of scores. The decisions are not constrained by an arbitrary 3-rank system such as a High, Medium, Low. Figure 2 shows the distributions of performance scores for the four function groups assessed in the Mill Creek basin. Scores for Non-fish Habitat and Water Quality Improvement were approximately normally distributed. The decision of the SAMP committee was to identify three groups of wetlands for planning purposes: 1) the 13 highest scoring wetlands (top 10%) for a function group, 2) the 38 highest scoring wetlands (top 30%), and 3) all the rest. This, however, was not the case for Fish

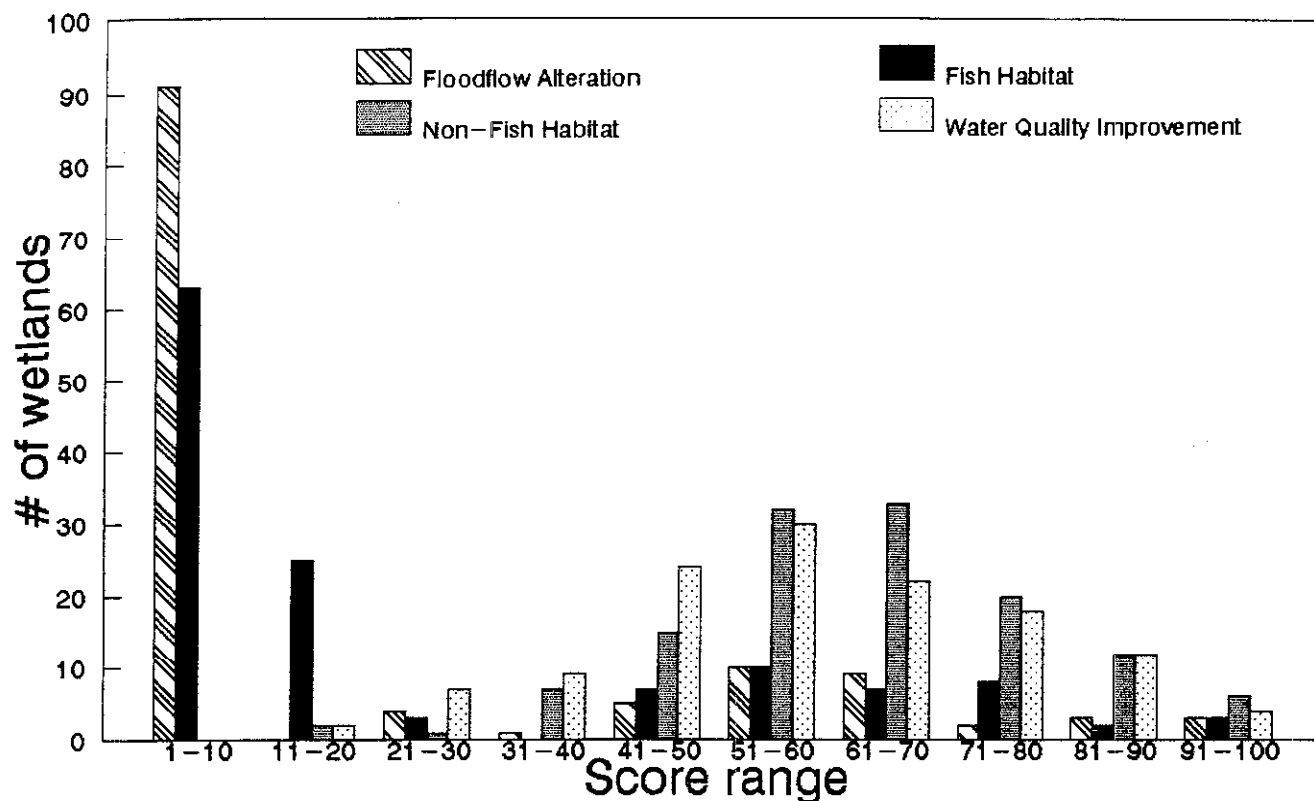


Figure 2. Distribution of scores for the four function groups in the Mill Creek basin.

Habitat or Floodflow Alteration. Since the scores had a bimodal distribution, wetlands were grouped into those with relatively high scores and those with relatively low scores.

### CONCLUSIONS

The IVA method was developed to meet an immediate need to provide information for developing wetland management plans in small watersheds or basins. As discussed above, it is not conceptually different from some of the other, more general, numeric methods that already exist. It is different, however, in the way models of performance and value are developed. Rather than modifying more general models, we began with the premise that models for assessing performance of wetland functions need to be developed locally to generate the information needed for regional plans. This conclusion is based on our experience with the three planning efforts described, as well as from tracking similar planning efforts (City of Eugene 1992). The focus of our efforts has been to develop a standard and easily understood process by which the models are developed and local levels of performance and values are estimated. We hope that this standardized process facilitates future regional efforts at managing wetlands.

Throughout the process, we have attempted to maintain a strong separation between the concepts of performance of a function in a wetland and its regional importance. The separation of the two concepts facilitates participation by interested parties and meets the planning needs for assessments of both performance and value. On one hand, the public is involved in establishing the relative importance of different functions and does not feel left out of the process. Such participation is necessary for regional management plans to work (Broadhurst and Tanner 1994, U.S. Forest Service 1994). On the other hand, the more scientific decisions regarding performance of functions are left to the local experts. Thus, assessments of performance are made by the scientists. The assessments of value, however, reflect the needs and perceptions of the general public and regulators.

The U.S. Army Corps of Engineers is spearheading efforts to develop quantitative models for functions based on the Hydrogeomorphic Classification of Brinson (1993b). These models will be geographically based but on a larger scale than small watersheds or basins. These new models will be quantitative, more rigorous, and based on actual measurements of performance at reference sites (Smith and Bartoldus 1994). Once developed, these models may meet the needs of regional

planning, and if so, will provide a more quantitative assessment than the IVA and other current methods.

### ACKNOWLEDGMENTS

The development of the method in its final form was an evolutionary process with members of the SAMP scientific subcommittees (see Appendix A for list of members on subcommittees) providing guidance, discussion, and suggestions. We thank the members of the two scientific subcommittees of the SAMPS, listed in Appendix A, for their helpful discussions and comments during the development of the method. Many of the refinements in the approach are a result of the continuing input from these two groups. Special thanks are due to Dr. Mary Ann Thiesing for helping us refine the assumptions of the method and identify its differences from the WET.

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Appendix A. Members of the technical subcommittee for each SAMP.

**MILL CREEK SPECIAL AREA MANAGEMENT PLAN**

Kenneth Brunner, U.S. Army Corps of Engineers  
Dr. Thomas Hruby, WA State Department of Ecology  
Andrew Levesque, King County Surface Water Management Agency  
Joseph Robel, Washington State Department of Fisheries  
Michael Scuderi, U.S. Army Corps of Engineers  
Jonathan Smith, U.S. Army Corps of Engineers  
Lois Stark, City of Auburn Planning Office  
Dr. Fred Weinmann, U.S. Environmental Protection Agency

**HACKENSACK MEADOWLANDS SPECIAL AREA MANAGEMENT PLAN**

William Cesanek, Camp Dresser & McKee, Inc.  
Don Smith, Consultant to Hackensack Meadowlands Development Commission  
Robert Hargrove, U.S. EPA  
Dr. Thomas Hruby, WA State Dept. of Ecology (formerly with Camp Dresser & McKee, Inc.)  
Keith Miller, Camp Dresser & McKee, Inc.  
Ken Scarletelli, Hackensack Meadowlands Development Commission  
Dr. Mary Anne Thiesing, U.S. EPA  
Richard Tomer, U.S. Army Corps of Engineers



# MIMAC

Meadowlands Interagency Mitigation Advisory Committee

Hackensack Meadowlands  
Development Commission

NOAA - National Marine  
Fisheries Service

NJ Department of  
Environmental Protection

US Army Corps of  
Engineers

US Environmental  
Protection Agency

US Fish & Wildlife Service

## Using the Wetland Indicator Value Assessment Method

The Indicator Value Assessment (IVA) Method assigns functional index scores to the District's wetlands, relative to the best-performing wetlands in the district. It is based on information that is typically gathered during a Wetlands Evaluation Technique (WET) evaluation. Index scores for each Assessment Area (AA) are multiplied by the acreage of the AA to determine wetland "indicator values" (in "acre-points"). In addition to the traditional WET questions, six questions have been added. These are:

- |         |                                       |
|---------|---------------------------------------|
| Q2_1_1A | Area < 1 acre                         |
| Q2_1_2A | Area > 1 acre                         |
| Q2_2_1A | Forested area < 1 acre                |
| Q2_2_1B | Forested area > 1 acre but < 40 acres |
| Q98     | Presence of <i>Eleocharis parvula</i> |
| Q99     | Proximity to public transportation    |

The IVA combines index scores for wetland functions into seven groups, or attributes:

### Attribute

### Sub-Attributes

Water Quality Improvement (WQ)

Juvenile/Forage Fish Habitat (JFF)

Shorebird Habitat (SHB)

Wading Bird Habitat (WAB)

Waterfowl Habitat (WFL)

Passerine Bird Habitat (PSS)

Social Significance (SS):

Recreation (REC)

Floodflow alteration (FFAS)

Conservation potential (CON)

The combined scores for each attribute are normalized by dividing attribute scores for each AA into the highest score received by any AA for that attribute.

## CALCULATING BASELINE SCORES

Table F-1 lists the total points each question awards to each attribute (or the multipliers applied). For each attribute, the points for each indicator present in the wetland are added together. If there are multiplicative factors (noted in Table F-1 by "x [a factor]"), then these factors are applied sequentially to the sum of the additive points. For example, for the WQ attribute, if a wetland has both indicators Q23 ("x 0.8") and Q25\_1 ("x 0.95"), then the sum of the WQ points for this wetland are multiplied by 0.8 and then by 0.95.

Note that several pairs of questions, if answered the same, are redundant and should not be counted twice. Points are awarded only once if answers are identical. These are:

- WET question 13 (secondary vegetation). If the wetland has the same dominant vegetation (WET question 12), it does not get additional points for the secondary vegetation. For example, if both Q12\_AB and Q13\_AB are answered 'Yes' for a wetland, it gets points only for Q12\_AB, not for Q13\_AB. However, if Q13\_AC is also answered 'Yes,' then the wetland gets the points associated with Q13\_AC (as long as Q12\_AC was not also answered 'Yes').
- WET question 33 (permanent hydroperiod). If the wetland has the same spatially dominant hydroperiod (WET question 32), it does not get additional points for the permanent hydroperiod. For example, if both Q32\_A and Q33\_A are answered 'Yes' for a wetland, it gets points only for Q32\_A, not for Q33\_A. However, if Q33\_B is also answered 'Yes,' then the wetland gets the points associated with Q33\_B (as long as Q32\_B was not also answered 'Yes').
- WET question 44 (secondary water depth). If the wetland has the same dominant water depth (WET question 43), it does not get additional points for the secondary water depth. For example, if both Q43\_A and Q44\_A are answered 'Yes' for a wetland, it gets points only for Q43\_A, not for Q44\_A. However, if Q44\_B is also answered 'Yes,' then the wetland gets the points associated with Q44\_B (as long as Q43\_B was not also answered 'Yes').
- WET question Q25\_2\_B (channel flow source of sediment). If a wetland has answers of 'Yes' for both Q25\_2\_A (sheetflow source of sediment) and Q25\_2\_B, it only gets the points (or multipliers) associated with Q25\_2\_A.
- WET questions Q26\_3 (channel flow source of nutrients). If a wetland has answers of 'Yes' for both Q26\_2 (sheetflow source of nutrients) and Q26\_3 it only gets the points (or multipliers) associated with Q26\_2.
- WET questions Q27\_3 (channel flow source of toxics). If a wetland has answers of 'Yes' for both Q27\_2 (sheetflow source of toxics) and Q27\_3 it only gets the points (or multipliers) associated with Q27\_2.

The other "special case" is for the juvenile/forage fish habitat (JFF) attribute.

- If the permanent or spatially dominant hydroperiod is saturated nontidal, temporarily flooded nontidal, or intermittently flooded nontidal (Q32\_E, Q32\_F, Q32\_G, Q33\_E, Q33\_F, Q33\_G), then:
  - if the dominant water depth in the wetland is greater than 1 inch (Q43\_B through Q43\_D), the score is multiplied by 0.2;

- otherwise (the dominant water depth is less than 1 inch—Q43\_A), the score is multiplied by 0.0 (resulting in a score of 0, even if other indicators for this attribute are present).

### **NORMALIZING BASELINE SCORES**

To normalize the scores for the WQ, JFF, SHB, WAB, WFL, and PSS attributes, the points for that attribute are added, the multipliers are applied, the score is divided by the highest score for that attribute, and that number is multiplied by 100. Divisors for each attribute are listed at the bottom of Table F-1.

To normalize the score for the SS attribute, the points for the indicators present are added for each of the contributing sub-attributes (REC, FFAS, and CON). Next, multipliers for the sub-attributes are applied. Finally, these scores are divided by the highest score for that function (as indicated at the bottom of Table F-1), but not multiplied by 100. Thus, REC scores are divided by 38, FFAS scores by 3, and CON by 394.82. Resulting CON scores above 0.88 are assigned a value of 1, while all others are assigned a value of 0. The results for the REC, FFAS, and CON sub-attributes are then added, and the total score is divided by 2.0175 (the highest scoring AA) and multiplied by 100.

Tables 3-4 in Section 3 of the EIS lists the baseline scores as calculated for the SAMP/EIS for each AA. Figures 3-5 through 3-11 depict these scores on a map of the District.

### **CALCULATING DIRECT WETLAND IMPACTS**

Losses of wetland values through direct impacts to wetlands can be calculated within an AA by multiplying the AA's baseline index score for each attribute times the number of acres of wetlands impacted. Direct wetland impacts for each of the planning and satellite areas and transportation improvements of the preferred alternative are presented in Table 5-2 of the SAMP/EIS.

### **CALCULATING INDIRECT WETLAND IMPACTS**

Potential for avoiding indirect wetland impacts through on-site management techniques is presented in Table N-2 (Appendix N). Potential for mitigating indirect wetland impacts through on-site management techniques is presented in Table N-3.

Losses of wetland indicator baseline scores from projected indirect impacts resulting from SAMP developments (after on-site management techniques have been applied) are presented in Table N-4. Cumulative losses of wetland values resulting from both direct and indirect impacts are tabulated for each attribute in Tables N-5 through N-11.

### **MITIGATING LOSSES IN WETLAND VALUES**

To achieve no net loss of wetland values, losses of index values from both direct impacts (IVA points/acre times acres of impact) and indirect impacts (reduction in IVA score times acres of remaining wetlands) must be balanced by gains in index value scores resulting from enhancement activities (IVA gain points/acre times mitigated acres).

Table O-3 (Appendix O) identifies enhancement techniques that have been deemed appropriate for use within each AA with enhancement potential.

Table O-2 tabulates maximum gains in scores to wetland attributes resulting from the use of each enhancement technique.

Table O-4 lists gains in wetland indicator scores and values resulting from the use of projected enhancement techniques for each AA. This table can be interpreted as follows:

In Table O-4, the first column lists the AA number. The second column lists the remaining wetland acreage following anticipated development. Column three lists the enhanceable acreage (the remaining acreage, minus acreage occupied by open water and/or committed for non-SAMP mitigation projects). The following seven columns (Post-Onsite Mitigation Scores, columns 4 through 10) lists the baseline index scores for each AA following anticipated development, implementation of best management practices, and on-site mitigation efforts.

The next seven columns in Table O-4 (Post-Enhancement Scores, columns 11 through 17) list the projected index scores for each AA following wetland enhancement. Gains in wetland values from successful enhancement efforts can be derived by subtracting an AA's baseline score from its score following enhancement.

The differences between pre-enhancement scores (columns 4 through 10) and post-enhancement scores (columns 11 through 17), multiplied by the enhanceable acres (column 3) are presented in the next seven columns (Gain in Value, columns 18-24). This represents the possible gains in value attributable to implementation of the wetland mitigation techniques listed in Table O-3.

The final column represents HMDC's best professional judgment regarding the suitability of each AA for enhancement: A = Best; B = Intermediate; C = Low; X = not suitable for enhancement due to either existing high wetland values or presence of known contamination.

#### **LOCATION OF INFORMATION IN SAMP DEIS**

**Section 3:** Baseline scores for AAs by attribute, Table 3-4

Wetland Assessment Areas (AAs), Figure 3-3

Water Quality Improvement Attribute Scores, Figure 3-4

Wildlife Habitat Attribute Scores, figure 3-5

**Section 5:** Direct Wetland Impacts of the Preferred Alternative components (Planning & Satellite Areas), Table 5-2

Cumulative Wetland Impacts of the Preferred Alternative, Table 5-1

**Appendix F:** Point values for each question by attribute, Table F-1

Description of the Methodology, Appendix F.3, pp. 31-38

Point values for each question by function, Table 3-1

**Appendix N:** Indirect Wetland Impacts & Management Techniques

Direct wetland impacts of pref. Alternative components, (Planning, Satellite Areas & Transportation Improvements), Table N-1

Indirect wetland impacts & on-site mitigation changes to attribute scores, Table N-4

Direct & indirect wetland impacts to Water Quality Improvement attribute, Table N-5

Direct & indirect wetland impacts to Wildlife Habitat Attribute, Table N-6

**Appendix O:** Wetland Mitigation/Enhancement Methods

Effects of Mitigation Strategies & Techniques on Wetland Indicators, Table O-2

Wetland Enhancement Strategies & Techniques Applicable to Potential Mitigation Sites, Table O-3

Wetland Enhancement Gains for all Potential Mitigation Sites, Table O-4

Indicators Changed through Enhancement Plan, Attachment O-1

### IVA Normalized Scores

[illegible]

### IVA Normalized Scores

[illegible]

# Appendix Table A-1 - continued

## IVA Normalized Scores

### III. Future 134 Acre - Empire Tract Alternative E

Assessment Area	Acreage	WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON	SS
2EB (frsh)	130	85.9	48.6	87.7	102.1	85	83.3	0.33	0.32	0	32.2
2EA\G\F\H	234	47.9	48.6	85.9	87.1	81.5	60.2	0.33	0.42	0	37.4
2N	15	45	8	48	65	46	56	0.33	0.16	0	24
2T	42	63.7	38.2	129.7	133	113	93.6	0.33	0.47	0	40
Total Acreage	421										

Appendix Table A-3

IVA Score Comparison

I. Future 134-Acre (D)

Attribute	Existing IVA Score Sum	134-Acre IVA Score Sum	Functional Ratio (Alt/Exist)
WQ	34824	28803	0.83
JFF	5666	13813	2.44
SHB	27590	38285	1.39
WAB	32387	40267	1.24
WFL	32209	34923	1.08
PSS	33031	38901	1.18
FFAS	168.63	148.02	0.88
REC	83.76	122.49	1.46
CON	0	280.192	#DIV/0!
SS	12280	13567	1.10

2E BASELINE

Table F-1  
Attribute Indicator Ranks

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
I1	Threatened/Endangered Species?	0	0	0	0	0	0	0	9	0
I3	State Listed Cultural Resource?	0	0	0	0	0	0	0	9	0
I4	Unusual or rare local type?	0	0	0	0	0	0	0	3	0
I6	Substantial previous \$ expenditure?	0	0	0	0	0	0	0	1	0
I8	Features sensitive to flooding?	0	0	0	0	0	0	1	0	0
I9	Downslope sensitive features in floodplain?	0	0	0	0	0	0	1	0	0
I18	Features in erosion prone areas?	0	0	0	0	0	0	1	0	0
I23	Education opportunity?	0	0	0	0	0	0	0	1	0
I24	Research resource?	0	0	0	0	0	0	0	1	0
I26	Recreation in deficient area?	0	0	0	0	0	0	0	3	0
I27	Recreation access point?	0	0	0	0	0	0	0	3	0
Q1_3	Freeze-over > one month?	0	0	0	0	0	0	0	0	0
Q2_1_1	Area < 5 acres?	0	0	0	0	0	0	0	0	x 0.965
Q2_1_1A	Area < 1 acre	0	0	1	1	1	0	0	0	0
Q2_1_2	Area > 40 acres?	4	0	0	0	0	0	0	0	21
Q2_1_2A	Area > 1 acre	0	1	3	3	3	9	0	0	0
Q2_1_3	Area > 200 acres?	12	1	3	3	3	9	0	0	63
Q2_2_1	Forested area < 5 acres ?	0	0	0	0	0	0	0	0	0
Q2_2_1A	Forested area < 1 acre	0	0	0	0	0	1	0	0	0
Q2_2_1B	Forested area > 1 ac, < 40 acres	0	0	0	0	0	3	0	0	0
Q2_2_2	Forested area > 40 acres ?	10	0	0	0	0	3	0	0	21
Q5_1_2	AA > 20% of watershed?	6	0	0	0	0	0	0	0	11
Q5_2	Upslope wet depressions > 5% of watershed?	0	0	0	0	0	0	0	0	0
Q5_3	AA outside annual floodplain ?	0	x 0.8	0	0	0	0	0	0	0
Q7	v < 10 cm/s?	6	0	0	0	0	0	0	0	0
Q8_1	Permanent inlet?	2	9	1	1	3	0	0	0	14
Q8_2	Intermittent inlet?	2	3	1	1	1	0	0	0	8
Q8_3	Permanent outlet?	0	9	1	1	1	0	0	0	30
Q8_4	Intermittent outlet?	2	3	0	0	0	0	0	0	6
Q9_1	Outlet < one third average width?	2	0	0	0	0	0	0	0	0
Q9_2	Sheet flooding?	18	0	0	0	0	0	0	0	28
Q10_B	Palustrine?	2	0	0	0	0	9	0	0	10
Q10_D	Riverine tidal?	2	9	9	9	9	0	0	0	8
Q10_E	Estuarine?	2	3	3	3	3	3	0	0	18
Q11	Fringe or island wetland?	2	9	1	1	1	0	0	0	10
Q12_AB	Dominant veg: forested and needle-leaved evergreen	1	0	0	0	0	9	0	0	0
Q12_AC	Dominant veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_AD	Dominant veg: forested and needle-leaved deciduous	1	0	0	0	0	0	0	0	0
Q12_AE	Dominant veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0
Q12_BB	Dominant veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_BC	Dominant veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_BD	Dominant veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	0	0	0	0
Q12_BE	Dominant veg: Scrub-shrub and broad-leaved deciduous	1	0	0	1	1	9	0	0	0
Q12_CA	Dominant veg: Aquatic bed and algal	2	9	1	3	9	0	0	0	6
Q12_CB	Dominant veg: Aquatic bed and floating vascular	2	9	1	9	9	0	0	0	10
Q12_CC	Dominant veg: Aquatic bed and rooted vascular	2	9	1	9	9	0	0	0	16
Q12_DA	Dominant veg: Emergent and persistent	6	1	1	1	3	3	0	0	16
Q12_DB	Dominant veg: Emergent and non-persistent	1	3	3	9	9	1	0	0	16
Q13_AA*	Secondary veg: forested and dead	0	0	0	1	0	3	0	0	0
Q13_AB*	Secondary veg: forested and needle-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_AC*	Secondary veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0	0

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q13_AD*	Secondary veg: forested and needle-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_AE*	Secondary veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0
Q13_BA*	Secondary veg: Scrub-shrub and dead	0	0	0	0	0	1	0	0	0
Q13_BB*	Secondary veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BC*	Secondary veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BD*	Secondary veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	3	0	0	0
Q13_BE*	Secondary veg: Scrub-shrub and broad-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_CA*	Secondary veg: Aquatic bed and algal	2	3	1	3	3	0	0	0	6
Q13_CB*	Secondary veg: Aquatic bed and floating vascular	2	3	1	3	3	0	0	0	10
Q13_CC*	Secondary veg: Aquatic bed and rooted vascular	2	3	1	3	3	0	0	0	16
Q13_DB*	Secondary veg: Emergent and non-persistent	1	1	1	1	3	1	0	0	16
Q14_1	AA on 25 square foot island?	0	0	9	3	9	3	0	0	7
Q14_2	AA on 2 acre island?	0	0	0	0	0	0	0	0	13
Q15_1_A	Vegetation<-->Water = solid form	2	1	1	1	1	3	0	0	7
Q15_1_B	Vegetation<-->Water = intermediate	4	3	3	3	3	3	0	0	20
Q15_1_C	Vegetation<-->Water = checkerboard	4	9	9	9	9	1	0	0	47
Q15_2	Channel flow spreading?	18	9	1	9	9	0	0	0	39
Q16_A	Vegetation class = solid	0	0	1	1	1	1	0	0	0
Q16_B	Vegetation class = intermediate	0	0	1	1	3	3	0	0	0
Q16_C	Vegetation class = mosaic	0	0	1	1	3	9	0	0	0
Q17	Plant form richness	0	0	0	1	3	9	0	0	0
Q18	Upland<-->Wetland edge irregular?	1	3	3	3	3	3	0	0	6
Q19_1_A	Wind shelter?	1	0	9	9	9	0	0	0	13
Q19_1_B	Wind shelter + fetch?	0	0	0	0	0	0	0	0	0
Q19_2	Wave protection?	3	1	3	3	3	0	0	0	9
Q19_3	Upland habitat wind shelter?	0	0	0	0	1	1	0	0	0
Q20_1	Zone B shaded?	0	3	0	0	1	0	0	0	0
Q20_2	Balance sun<-->shade?	0	0	0	0	0	0	0	0	0
Q21_A	Subwatershed dominant land cover: forest and scrub?	0	0	0	0	0	9	0	0	0
Q21_E	Subwatershed dominant land cover: urban lawn/fill?	0	0	0	0	1	0	0	0	0
Q22_1_1	AA contains a Channel?	0	3	1	3	3	0	0	0	10
Q22_1_2	AA contains a Sinuous channel?	2	3	0	0	3	0	0	0	0
Q23	Is the AA Channelized?	0 x 0.8	0	0	0	0	0	0	0	0
Q24_2	Fine mineral soils?	4	0	0	0	0	0	0	0	0
Q24_4	Slow percolation in watershed?	1	0	0	0	0	0	0	0	0
Q25_1	Source of Inorganic sediment in buffer zone?	0 x 0.95	0	0	0	0	0	0	0	0
Q25_2_B*	Primary source of sediment = channel flow?	1	0	0	0	0	0	0	0	0
Q25_3	Wetland stabilizes erosion?	3	0	0	0	0	0	0	0	13
Q26_1	Nutrient source in buffer zone?	3	0	0	0	0	0	0	0	0
Q26_2	Primary source of nutrients = sheetflow?	9	0	0	0	0	0	0	0	0
Q26_3*	Primary source of nutrients = bankflow?	1	0	0	0	0	0	0	0	0
Q27_1	Toxic source in buffer zone?	3	0 x 0.8	x 0.8	x 0.8	x 0.9	0	0	x 0.965	
Q27_2	Primary source of toxics = sheetflow?	9	x 0.7	0	0	0	0	0	x 0.934	
Q27_3*	Primary source of toxics = bankflow?	1	x 0.5	0	0	0	0	0	x 0.888	
Q28	Has AA been Directly altered?	x 0.8	0	0	0	0	0	0	0	x 0.822
Q29_1	Dense understory edge?	2	3	1	3	3	3	0	0	11
Q29_2	Buffer zone slopes < 5%?	0	0	0	0	0	0	0	0	0
Q30	Is AA subject to frequent Human disturbance?	x 0.95	0	0	0	0	0	0	0	x 0.933
Q31_1	Area of Zone A + Zone B > Zone C?	4	0	0	0	0	3	0	0	7

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q31_2	Area of Zone B > 10% of AA?	2	0	0	0	0	0	0	0	9
Q31_3	Area of Zone B > Zone A?	1	3	3	3	3	0	0	0	8
Q31_4	Area of submergent in Zone B > open water of Zones B + C	6	9	3	9	9	0	0	0	10
Q31_5	Area of Zone A >= 10% of Zone B and C?	0	0	0	0	1	3	0	0	0
Q31_6_A	emergent in Zone B = 0% of Zones B and C?	0	3	3	3	3	0	0	0	0
Q31_6_B	emergent in Zone B = 1% - 30% of Zones B and C?	2	3	3	3	3	1	0	0	12
Q31_6_C	emergent in Zone B = 31% - 60% of Zones B and C?	6	3	3	3	9	3	0	0	24
Q31_6_D	emergent in Zone B = 61% - 99% of Zones B and C?	18	1	1	1	3	3	0	0	41
Q31_6_E	emergent in Zone B = 100% of Zones B and C or not prese	0	0	0	0	0	3	0	0	0
Q32_A	Spatial Dominant Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q32_B	Spatial Dominant Hydroperiod = intermit exposed nontidal?	0	9	1	3	3	0	0	0	4
Q32_C	Spatial Dominant Hydroperiod = semiperm flooded nontidal	0	3	1	3	3	0	0	0	0
Q32_D	Spatial Dominant Hydroperiod = seasonally flooded nontidal	0	1	1	1	3	3	0	0	0
Q32_E	Spatial Dominant Hydroperiod = saturated nontidal?	0	**	0	1	0	1	0	0	0
Q32_F	Spatial Dominant Hydroperiod = temp flooded nontidal?	0	**	0	0	1	0	0	0	0
Q32_G	Spatial Dominant Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	1	0	0	0
Q32_H	Spatial Dominant Hydroperiod = artificially flooded nontidal?	0	0	9	9	9	0	0	0	0
Q32_I	Spatial Dominant Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q32_J	Spatial Dominant Hydroperiod = irregularly exposed tidal?	0	3	3	3	3	0	0	0	33
Q32_K	Spatial Dominant Hydroperiod = irregularly flooded tidal?	0	1	1	1	3	3	0	0	9
Q33_A*	Permanent Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q33_B*	Permanent Hydroperiod = intermit exposed nontidal?	0	3	1	3	3	0	0	0	0
Q33_C*	Permanent Hydroperiod = semiperm flooded nontidal?	0	3	1	3	3	0	0	0	0
Q33_D*	Permanent Hydroperiod = seasonally flooded nontidal?	0	1	1	1	3	3	0	0	0
Q33_E*	Permanent Hydroperiod = saturated nontidal?	0	**	0	1	0	1	0	0	0
Q33_F*	Permanent Hydroperiod = temp flooded nontidal?	0	**	0	0	1	0	0	0	0
Q33_G*	Permanent Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	1	0	0	0
Q33_H*	Permanent Hydroperiod = artificially flooded nontidal?	0	0	9	9	9	0	0	0	0
Q33_I*	Permanent Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q33_J*	Permanent Hydroperiod = irregularly exposed tidal?	0	9	3	3	3	0	0	0	33
Q33_K*	Permanent Hydroperiod = irregularly flooded tidal?	0	0	1	1	3	3	0	0	9
Q34_1	Local dams?	3	0	0	0	0	3	0	0	15
Q34_2	Upstream impoundment?	0	0	0	0	0	0	0	0	0
Q34_3_1	Flooding due to downslope impoundment?	1	0	0	0	0	0	0	0	8
Q36_1_1	Average width of erect veg in Zones A and B < 20 feet?	0	0	0	0	3	0	0	0	0
Q36_1_2	Average width of erect veg in Zones A and B > 500 feet?	6	0	1	1	0	9	0	0	12
Q36_2_3	Avg width of erect veg (d<0.5 height) in Zone B > 500 feet?	0	0	0	0	0	9	0	0	0
Q37	Open water (d>2ft, w>6ft, l>1000ft)?	0	9	0	3	9	0	0	0	21
Q38_1	Perm flood or seas flood and other < 1 mi	0	9	1	3	3	0	0	0	0
Q38_2	(nontidal with erect veg) or 1 acre hardwood and other < 0.5	0	0	0	3	1	3	0	0	0
Q38_3	(estuarine/marine) or (fw palustrine/lacustrine) and other <	0	0	0	0	0	0	0	0	0
Q38_4	mudflat or tidal scrub-shrub and other adjacent	0	0	0	1	0	0	0	0	0
Q38_5	mudflat > 5 acre or emergent veg > 5 acre and other adja	0	3	9	9	9	0	0	0	0
Q38_6	agr/early succession or evergr forest>10 acres and other <	0	0	0	0	0	0	0	0	0
Q38_7	semiperm or seas flood or perm flood/intermit exposed and	0	0	3	3	9	0	0	0	0
Q39	Special habitat features?	0	0	1	3	3	9	0	0	0
Q40_2	Bottom water > 21 degrees C?	0	0	0	0	0	0	0	0	0
Q41_1	Peak flow velocity < 10 cm/s?	6	3	3	3	3	0	0	0	15
Q41_2	Peak flow velocity > 30 cm/s?	0	0	0	0	0	0	0	0	0
Q42_1_1	>1 acre or 10% of AA: 0<v<1 ft/sec	0	3	3	3	3	0	0	0	0
Q43_A	Dominant Water Depth < 1 inch	0	1	3	1	1	3	0	0	6

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q43_B	1 in < dominant water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q43_C	5 in < dwd < 8 inches	0	9	3	9	9	0	0	0	0
Q43_D	9 in < dominant water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q43_E	21 in < dominant water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q43_F	40 in < dominant water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q43_G	5 feet < dominant water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q43_H	6.5 feet < dominant water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q43_I	dominant water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q44_A*	Secondary Water Depth < 1 inch	0	0	3	1	1	3	0	0	6
Q44_B*	1 in < secondary water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q44_C*	5 in < secondary water depth < 8 inches	0	9	3	9	9	0	0	0	0
Q44_E*	21 in < secondary water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q44_F*	40 in < secondary water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q44_G*	5 feet < secondary water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q44_H*	6.5 feet < secondary water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q44_I*	secondary water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q45_B	Substrate: Muck?	2	1	9	9	9	0	0	0	0
Q45_C	Substrate: peat?	6	1	9	9	9	0	0	0	0
Q45_D	Substrate: sand?	1	1	9	9	9	0	0	0	7
Q45_A	Substrate: mud?	2	1	9	9	9	1	0	0	8
Q45_E	Substrate: cobble-gravel?	0	0	0	0	0	0	0	0	13
Q45_F	Substrate: rubble?	0	0	0	0	0	0	0	0	13
Q46_B	Physical Habitat Interspersion = intermediate	0	3	0	1	3	0	0	0	0
Q46_C	Physical Habitat Interspersion = mosaic	1	9	0	3	9	0	0	0	14
Q48_A	Salinity < 0.5 ppt	1	0	0	0	1	1	0	0	0
Q49_1_1	20%-80% Pools?	0	3	0	9	9	0	0	0	0
Q49_1_2	Riffles?	0	0	0	0	0	0	0	0	0
Q49_2	Fish cover?	0	9	1	3	3	0	0	0	18
Q49_3	Carp prevalent in AA ?	0	0	0	3	0	0	0	0	0
Q50	Plants: waterfowl value?	0	3	3	1	9	1	0	0	0
Q51_2	Plant productivity > 1500 g/sq.m/yr	9	0	0	0	0	0	0	0	19
Q52_1	Freshwater Invertebrate Density > 500 sq.ft.	0	9	9	3	9	3	0	0	0
Q53_1	Tidal flat Invertebrate Density = "H"	0	3	9	9	9	1	0	0	0
Q55_1	Suspended Solids < 25 mg/l	0	3	0	1	0	0	0	0	0
Q55_3	Suspended Solids > 1200 mg/l	1	0	0	0	0	0	0	0	0
Q55_4	Suspended Solids > 4000 mg/l	3	0	0	0	0	0	0	0	0
Q61	DO limiting to fish?	0	x 0.7	0	0	0	0	0	0	x 0.934
Q63_1	Floodpeaks: inlet > outlet ?	0	0	0	0	0	0	0	0	0
Q63_2	Surface water inflows > outflows ?	1	0	0	0	0	0	0	0	0
Q64	Total Suspended Solids at inlet > outlet?	1	0	0	0	0	0	0	0	0
Q65_3	Warm Freshwater Fish present?	0	9	0	9	3	1	0	0	0
Q66_1_1	Group 1 Waterfowl Breeding present?	0	0	0	0	9	0	0	0	0
Q66_2_1	Waterfowl Group 1 Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_3	Black Duck Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_5	Mergansers Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_7	Bufflehead/Goldeneye Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_10	Geese Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q98	Presence of Eleocharis parvula	0	3	9	9	3	0	0	0	0
Q99	Proximity to public transportation	0	0	0	0	0	0	0	x 2	0

\* Special instructions for this indicator See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

		Social Significance								
Ques	Summary	WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
	Normalize by Dividing by (then multiply by 100)	130	101.65	84.8	112	208	97.2	3	38	394.82
									<div><div></div><div>2.0175</div></div>	

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0.

Table F-1  
Attribute Indicator Ranks

Ques	Summary	Social Significance							
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC CON
I1	Threatened/Endangered Species?	0	0	0	0	0	0	0	9 0
I3	State Listed Cultural Resource?	0	0	0	0	0	0	0	9 0
I4	Unusual or rare local type?	0	0	0	0	0	0	0	3 0
I6	Substantial previous \$ expenditure?	0	0	0	0	0	0	0	1 0
I8	Features sensitive to flooding?	0	0	0	0	0	0	1	0 0
I9	Downslope sensitive features in floodplain?	0	0	0	0	0	0	1	0 0
I18	Features in erosion prone areas?	0	0	0	0	0	0	1	0 0
I23	Education opportunity?	0	0	0	0	0	0	0	1 0
I24	Research resource?	0	0	0	0	0	0	0	1 0
I26	Recreation in deficient area?	0	0	0	0	0	0	0	3 0
I27	Recreation access point?	0	0	0	0	0	0	0	3 0
Q1_3	Freeze-over > one month?	0	0	0	0	0	0	0	0 0
Q2_1_1	Area < 5 acres?	0	0	0	0	0	0	0	x 0.965
Q2_1_1A	Area < 1 acre	0	0	1	1	1	0	0	0 0
Q2_1_2	Area > 40 acres?	4	0	0	0	0	0	0	0 21
Q2_1_2A	Area > 1 acre	0	1	3	3	3	9	0	0 0
Q2_1_3	Area > 200 acres?	12	1	3	3	3	9	0	0 63
Q2_2_1	Forested area < 5 acres ?	0	0	0	0	0	0	0	0 0
Q2_2_1A	Forested area < 1 acre	0	0	0	0	0	1	0	0 0
Q2_2_1B	Forested area > 1 ac, < 40 acres	0	0	0	0	0	3	0	0 0
Q2_2_2	Forested area > 40 acres ?	10	0	0	0	0	3	0	0 21
Q5_1_2	AA > 20% of watershed?	6	0	0	0	0	0	0	0 11
Q5_2	Upslope wet depressions > 5% of watershed?	0	0	0	0	0	0	0	0 0
Q5_3	AA outside annual floodplain ?	0 x 0.8	0	0	0	0	0	0	0 0
Q7	v < 10 cm/s?	6	0	0	0	0	0	0	0 0
Q8_1	Permanent inlet?	2	9	1	1	3	0	0	0 14
Q8_2	Intermittent inlet?	2	3	1	1	1	0	0	0 8
Q8_3	Permanent outlet?	0	9	1	1	1	0	0	0 30
Q8_4	Intermittent outlet?	2	3	0	0	0	0	0	0 6
Q9_1	Outlet < one third average width?	2	0	0	0	0	0	0	0 0
Q9_2	Sheet flooding?	18	0	0	0	0	0	0	0 28
Q10_B	Palustrine?	2	0	0	0	0	9	0	0 10
Q10_D	Riverine tidal?	2	9	9	9	9	0	0	0 8
Q10_E	Estuarine?	2	3	3	3	3	3	0	0 18
Q11	Fringe or island wetland?	2	9	1	1	1	0	0	0 10
Q12_AB	Dominant veg: forested and needle-leaved evergreen	1	0	0	0	0	9	0	0 0
Q12_AC	Dominant veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0 0
Q12_AD	Dominant veg: forested and needle-leaved deciduous	1	0	0	0	0	0	0	0 0
Q12_AE	Dominant veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0 0
Q12_BB	Dominant veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	0	0	0 0
Q12_BC	Dominant veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	0	0	0 0
Q12_BD	Dominant veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	0	0	0 0
Q12_BE	Dominant veg: Scrub-shrub and broad-leaved deciduous	1	0	0	1	1	9	0	0 0
Q12_CA	Dominant veg: Aquatic bed and algal	2	9	1	3	9	0	0	0 6
Q12_CB	Dominant veg: Aquatic bed and floating vascular	2	9	1	9	9	0	0	0 10
Q12_CC	Dominant veg: Aquatic bed and rooted vascular	2	9	1	9	9	0	0	0 16
Q12_DA	Dominant veg: Emergent and persistent	6	1	1	1	3	3	0	0 16
Q12_DB	Dominant veg: Emergent and non-persistent	1	3	3	9	9	1	0	0 16
Q13_AA*	Secondary veg: forested and dead	0	0	0	1	0	3	0	0 0
Q13_AB*	Secondary veg: forested and needle-leaved evergreen	1	0	0	0	0	3	0	0 0
Q13_AC*	Secondary veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0 0

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q13_AD*	Secondary veg: forested and needle-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_AE*	Secondary veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0
Q13_BA*	Secondary veg: Scrub-shrub and dead	0	0	0	0	0	1	0	0	0
Q13_BB*	Secondary veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BC*	Secondary veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BD*	Secondary veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	3	0	0	0
Q13_BE*	Secondary veg: Scrub-shrub and broad-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_CA*	Secondary veg: Aquatic bed and algal	2	3	1	3	3	0	0	0	6
Q13_CB*	Secondary veg: Aquatic bed and floating vascular	2	3	1	3	3	0	0	0	10
Q13_CC*	Secondary veg: Aquatic bed and rooted vascular	2	3	1	3	3	0	0	0	16
Q13_DB*	Secondary veg: Emergent and non-persistent	1	1	1	1	3	1	0	0	16
Q14_1	AA on 25 square foot island?	0	0	9	3	9	3	0	0	7
Q14_2	AA on 2 acre island?	0	0	0	0	0	0	0	0	13
Q15_1_A	Vegetation<-->Water = solid form	2	1	1	1	1	3	0	0	7
Q15_1_B	Vegetation<-->Water = intermediate	4	3	3	3	3	3	0	0	20
Q15_1_C	Vegetation<-->Water = checkerboard	4	9	9	9	9	1	0	0	47
Q15_2	Channel flow spreading?	18	9	1	9	9	0	0	0	39
Q16_A	Vegetation class = solid	0	0	1	1	1	1	0	0	0
Q16_B	Vegetation class = intermediate	0	0	1	1	3	3	0	0	0
Q16_C	Vegetation class = mosaic	0	0	1	1	3	9	0	0	0
Q17	Plant form richness	0	0	0	1	3	9	0	0	0
Q18	Upland<-->Wetland edge irregular?	1	3	3	3	3	3	0	0	6
Q19_1_A	Wind shelter?	1	0	9	9	9	0	0	0	13
Q19_1_B	Wind shelter + fetch?	0	0	0	0	0	0	0	0	0
Q19_2	Wave protection?	3	1	3	3	3	0	0	0	9
Q19_3	Upland habitat wind shelter?	0	0	0	0	1	1	0	0	0
Q20_1	Zone B shaded?	0	3	0	0	1	0	0	0	0
Q20_2	Balance sun<-->shade?	0	0	0	0	0	0	0	0	0
Q21_A	Subwatershed dominant land cover: forest and scrub?	0	0	0	0	0	9	0	0	0
Q21_E	Subwatershed dominant land cover: urban lawn/fill?	0	0	0	0	1	0	0	0	0
Q22_1_1	AA contains a Channel?	0	3	1	3	3	0	0	0	10
Q22_1_2	AA contains a Sinuous channel?	2	3	0	0	3	0	0	0	0
Q23	Is the AA Channelized?	0	x 0.8	0	0	0	0	0	0	0
Q24_2	Fine mineral soils?	4	0	0	0	0	0	0	0	0
Q24_4	Slow percolation in watershed?	1	0	0	0	0	0	0	0	0
Q25_1	Source of Inorganic sediment in buffer zone?	0	x 0.95	0	0	0	0	0	0	0
Q25_2_A	Primary source of sediment = sheetflow?	10	0	0	0	0	0	0	0	20
Q25_2_B*	Primary source of sediment = channel flow?	1	0	0	0	0	0	0	0	0
Q25_3	Wetland stabilizes erosion?	3	0	0	0	0	0	0	0	13
Q26_1	Nutrient source in buffer zone?	3	0	0	0	0	0	0	0	0
Q26_2	Primary source of nutrients = sheetflow?	9	0	0	0	0	0	0	0	0
Q26_3*	Primary source of nutrients = channel flow?	1	0	0	0	0	0	0	0	0
Q27_1	Toxic source in buffer zone?	3	0	x 0.8	x 0.8	x 0.8	x 0.9	0	0	x 0.965
Q27_2	Primary source of toxics = sheetflow?	9	x 0.7	0	0	0	0	0	0	x 0.934
Q27_3*	Primary source of toxics = channel flow?	1	x 0.5	0	0	0	0	0	0	x 0.888
Q28	Has AA been Directly altered?	x 0.8	0	0	0	0	0	0	0	x 0.822
Q29_1	Dense understory edge?	2	3	1	3	3	3	0	0	11
Q29_2	Buffer zone slopes < 5%?	0	0	0	0	0	0	0	0	0
Q30	Is AA subject to frequent Human disturbance?	x 0.95	0	0	0	0	0	0	0	x 0.933
Q31_1	Area of Zone A + Zone B > Zone C?	4	0	0	0	0	3	0	0	7

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q31_2	Area of Zone B > 10% of AA?	2	0	0	0	0	0	0	0	9
Q31_3	Area of Zone B > Zone A?	1	3	3	3	3	0	0	0	8
Q31_4	Area of submergent in Zone B > open water of Zones B + C	6	9	3	9	9	0	0	0	10
Q31_5	Area of Zone A >= 10% of Zone B and C?	0	0	0	0	1	3	0	0	0
Q31_6_A	emergent in Zone B = 0% of Zones B and C?	0	3	3	3	3	0	0	0	0
Q31_6_B	emergent in Zone B = 1% - 30% of Zones B and C?	2	3	3	3	3	1	0	0	12
Q31_6_C	emergent in Zone B = 31% - 60% of Zones B and C?	6	3	3	3	9	3	0	0	24
Q31_6_D	emergent in Zone B = 61% - 99% of Zones B and C?	18	1	1	1	3	3	0	0	41
Q31_6_E	emergent in Zone B = 100% of Zones B and C or not prese	0	0	0	0	0	3	0	0	0
Q32_A	Spatial Dominant Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q32_B	Spatial Dominant Hydroperiod = intermit exposed nontidal?	0	9	1	3	3	0	0	0	0
Q32_C	Spatial Dominant Hydroperiod = semiperm flooded nontidal	0	3	1	3	3	0	0	0	0
Q32_D	Spatial Dominant Hydroperiod = seasonally flooded nontidal	0	1	1	1	3	3	0	0	0
Q32_E	Spatial Dominant Hydroperiod = saturated nontidal?	0	**	0	1	0	1	0	0	0
Q32_F	Spatial Dominant Hydroperiod = temp flooded nontidal?	0	**	0	0	1	0	0	0	0
Q32_G	Spatial Dominant Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	1	0	0	0
Q32_H	Spatial Dominant Hydroperiod = artificially flooded nontidal?	0	0	9	9	9	0	0	0	0
Q32_I	Spatial Dominant Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q32_J	Spatial Dominant Hydroperiod = irregularly exposed tidal?	0	3	3	3	3	0	0	0	33
Q32_K	Spatial Dominant Hydroperiod = irregularly flooded tidal?	0	1	1	1	3	3	0	0	9
Q33_A*	Permanent Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q33_B*	Permanent Hydroperiod = intermit exposed nontidal?	0	3	1	3	3	0	0	0	0
Q33_C*	Permanent Hydroperiod = semiperm flooded nontidal?	0	3	1	3	3	0	0	0	0
Q33_D*	Permanent Hydroperiod = seasonally flooded nontidal?	0	1	1	1	3	3	0	0	0
Q33_E*	Permanent Hydroperiod = saturated nontidal?	0	**	0	0	0	1	0	0	0
Q33_F*	Permanent Hydroperiod = temp flooded nontidal?	0	**	0	0	0	1	0	0	0
Q33_G*	Permanent Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	0	0	0	0
Q33_H*	Permanent Hydroperiod = artificially flooded nontidal?	0	9	9	9	9	0	0	0	0
Q33_I*	Permanent Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q33_J*	Permanent Hydroperiod = irregularly exposed tidal?	0	9	3	3	3	0	0	0	33
Q33_K*	Permanent Hydroperiod = irregularly flooded tidal?	0	0	1	1	3	3	0	0	9
Q34_1	Local dams?	3	0	0	0	0	3	0	0	15
Q34_2	Upstream impoundment?	0	0	0	0	0	0	0	0	0
Q34_3_1	Flooding due to downslope impoundment?	1	0	0	0	0	0	0	0	8
Q36_1_1	Average width of erect veg in Zones A and B < 20 feet?	0	0	0	0	3	0	0	0	0
Q36_1_2	Average width of erect veg in Zones A and B > 500 feet?	6	0	1	1	0	9	0	0	12
Q36_2_3	Avg width of erect veg (d<0.5 height) in Zone B > 500 feet?	0	0	0	0	0	9	0	0	0
Q37	Open water (d>2ft,w>6ft,l>1000ft)?	0	9	0	3	9	0	0	0	21
Q38_1	Perm flood or seas flood and other < 1 mi	0	9	1	3	3	0	0	0	0
Q38_2	(nontidal with erect veg) or 1 acre hardwood and other < 0.5	0	0	0	3	1	3	0	0	0
Q38_3	(estuarine/marine) or (fw palustrine/lacustrine) and other <	0	0	0	0	0	0	0	0	0
Q38_4	mudflat or tidal scrub-shrub and other adjacent	0	0	0	1	0	0	0	0	0
Q38_5	mudflat > 5 acre or emergent veg > 5 acre and other adja	0	3	9	9	9	0	0	0	0
Q38_6	agr/early succession or evergr forest>10 acres and other <	0	0	0	0	0	0	0	0	0
Q38_7	semiperm or seas flood or perm flood/intermit exposed and	0	0	3	3	9	0	0	0	0
Q39	Special habitat features?	0	0	1	3	3	9	0	0	0
Q40_2	Bottom water > 21 degrees C?	0	0	0	0	0	0	0	0	0
Q41_1	Peak flow velocity < 10 cm/s?	6	3	3	3	3	0	0	0	15
Q41_2	Peak flow velocity > 30 cm/s?	0	0	0	0	0	0	0	0	0
Q42_1_1	>1 acre or 10% of AA: 0<v<1 ft/sec	0	3	3	3	3	0	0	0	0
Q43_A	Dominant Water Depth < 1 inch	0	1	3	1	1	3	0	0	6

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

**Table F-1**  
(continued)

Ques	Summary	Social Significance									
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON	
	Normalize by Dividing by (then multiply by 100)	130	101	65	84.8	112	208	97.2	3	38	394.82
									2.0175		

\* Special instructions for this indicator: See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise multiply by 0.

Table F-1  
Attribute Indicator Ranks

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
I1	Threatened/Endangered Species?	0	0	0	0	0	0	0	9	0
I3	State Listed Cultural Resource?	0	0	0	0	0	0	0	9	0
I4	Unusual or rare local type?	0	0	0	0	0	0	0	3	0
I6	Substantial previous \$ expenditure?	0	0	0	0	0	0	0	1	0
I8	Features sensitive to flooding?	0	0	0	0	0	0	1	0	0
I9	Downslope sensitive features in floodplain?	0	0	0	0	0	0	1	0	0
I18	Features in erosion prone areas?	0	0	0	0	0	0	1	0	0
I23	Education opportunity?	0	0	0	0	0	0	0	1	0
I24	Research resource?	0	0	0	0	0	0	0	1	0
I26	Recreation in deficient area?	0	0	0	0	0	0	0	3	0
I27	Recreation access point?	0	0	0	0	0	0	0	3	0
Q1_3	Freeze-over > one month?	0	0	0	0	0	0	0	0	0
Q2_1_1	Area < 5 acres?	0	0	0	0	0	0	0	0	x 0.965
Q2_1_1A	Area < 1 acre	0	0	1	1	1	0	0	0	0
Q2_1_2	Area > 40 acres?	4	0	0	0	0	0	0	0	21
Q2_1_2A	Area > 1 acre	0	1	3	3	3	9	0	0	0
Q2_1_3	Area > 200 acres?	12	1	3	3	3	9	0	0	63
Q2_2_1	Forested area < 5 acres ?	0	0	0	0	0	0	0	0	0
Q2_2_1A	Forested area < 1 acre	0	0	0	0	0	1	0	0	0
Q2_2_1B	Forested area > 1 ac. < 40 acres	0	0	0	0	0	3	0	0	0
Q2_2_2	Forested area > 40 acres ?	10	0	0	0	0	3	0	0	21
Q5_1_2	AA > 20% of watershed?	6	0	0	0	0	0	0	0	11
Q5_2	Upslope wet depressions > 5% of watershed?	0	0	0	0	0	0	0	0	0
Q5_3	AA outside annual floodplain ?	0	x 0.8	0	0	0	0	0	0	0
Q7	v < 10 cm/s?	6	0	0	0	0	0	0	0	0
Q8_1	Permanent inlet?	2	9	1	1	3	0	0	0	14
Q8_2	Intermittent inlet?	2	3	1	1	1	0	0	0	8
Q8_3	Permanent outlet?	0	9	1	1	1	0	0	0	30
Q8_4	Intermittent outlet?	2	3	0	0	0	0	0	0	6
Q9_1	Outlet < one third average width?	2	0	0	0	0	0	0	0	0
Q9_2	Sheet flooding?	18	0	0	0	0	0	0	0	28
Q10_B	Palustrine?	2	0	0	0	0	9	0	0	10
Q10_D	Riverine tidal?	2	9	9	9	9	0	0	0	8
Q10_E	Estuarine?	2	3	3	3	3	3	0	0	18
Q11	Fringe or island wetland?	2	9	1	1	1	0	0	0	10
Q12_AB	Dominant veg: forested and needle-leaved evergreen	1	0	0	0	0	9	0	0	0
Q12_AC	Dominant veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_AD	Dominant veg: forested and needle-leaved deciduous	1	0	0	0	0	0	0	0	0
Q12_AE	Dominant veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0
Q12_BB	Dominant veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_BC	Dominant veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_BD	Dominant veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	0	0	0	0
Q12_BE	Dominant veg: Scrub-shrub and broad-leaved deciduous	1	0	0	1	1	9	0	0	0
Q12_CA	Dominant veg: Aquatic bed and algal	2	9	1	3	9	0	0	0	6
Q12_CB	Dominant veg: Aquatic bed and floating vascular	2	9	1	9	9	0	0	0	10
Q12_CC	Dominant veg: Aquatic bed and rooted vascular	2	9	1	9	9	0	0	0	16
Q12_DA	Dominant veg: Emergent and persistent	6	1	1	1	3	3	0	0	16
Q12_DB	Dominant veg: Emergent and non-persistent	1	3	3	9	9	1	0	0	16
Q13_AA*	Secondary veg: forested and dead	0	0	0	1	0	3	0	0	0
Q13_AB*	Secondary veg: forested and needle-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13.AC*	Secondary veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0	0

\* Special instructions for this indicator See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q13_AD*	Secondary veg: forested and needle-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_AE*	Secondary veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0
Q13_BA*	Secondary veg: Scrub-shrub and dead	0	0	0	0	0	1	0	0	0
Q13_BB*	Secondary veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BC*	Secondary veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BD*	Secondary veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	3	0	0	0
Q13_BE*	Secondary veg: Scrub-shrub and broad-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_CA*	Secondary veg: Aquatic bed and algal	2	3	1	3	3	0	0	0	6
Q13_CB*	Secondary veg: Aquatic bed and floating vascular	2	3	1	3	3	0	0	0	10
Q13_CC*	Secondary veg: Aquatic bed and rooted vascular	2	3	1	3	3	0	0	0	16
Q13_DB*	Secondary veg: Emergent and non-persistent	1	1	1	1	3	1	0	0	16
Q14_1	AA on 25 square foot island?	0	0	9	3	9	3	0	0	7
Q14_2	AA on 2 acre island?	0	0	0	0	0	0	0	0	13
Q15_1_A	Vegetation<-->Water = solid form	2	1	1	1	1	3	0	0	7
Q15_1_B	Vegetation<-->Water = intermediate	4	3	3	3	3	3	0	0	20
Q15_1_C	Vegetation<-->Water = checkerboard	4	9	9	9	9	1	0	0	47
Q15_2	Channel flow spreading?	18	9	1	9	9	0	0	0	39
Q16_A	Vegetation class = solid	0	0	1	1	1	1	0	0	0
Q16_B	Vegetation class = intermediate	0	0	1	1	3	3	0	0	0
Q16_C	Vegetation class = mosaic	0	0	1	1	3	9	0	0	0
Q17	Plant form richness	0	0	0	1	3	9	0	0	0
Q18	Upland<-->Wetland edge irregular?	1	3	3	3	3	3	0	0	6
Q19_1_A	Wind shelter?	1	0	9	9	9	0	0	0	13
Q19_1_B	Wind shelter + fetch?	0	0	0	0	0	0	0	0	0
Q19_2	Wave protection?	3	1	3	3	3	0	0	0	9
Q19_3	Upland habitat wind shelter?	0	0	0	0	1	1	0	0	0
Q20_1	Zone B shaded?	0	3	0	0	1	0	0	0	0
Q20_2	Balance sun<-->shade?	0	0	0	0	0	0	0	0	0
Q21_A	Subwatershed dominant land cover: forest and scrub?	0	0	0	0	0	9	0	0	0
Q21_E	Subwatershed dominant land cover: urban lawn/fill?	0	0	0	0	1	0	0	0	0
Q22_1_1	AA contains a Channel?	0	3	1	3	3	0	0	0	10
Q22_1_2	AA contains a Sinuous channel?	2	3	0	0	3	0	0	0	0
Q23	Is the AA Channelized?	0 x 0.8	0	0	0	0	0	0	0	0
Q24_2	Fine mineral soils?	4	0	0	0	0	0	0	0	0
Q24_4	Slow percolation in watershed?	1	0	0	0	0	0	0	0	0
Q25_1	Source of Inorganic sediment in buffer zone?	0 x 0.95	0	0	0	0	0	0	0	0
Q25_2_B*	Primary source of sediment = channel flow?	1	0	0	0	0	0	0	0	0
Q25_3	Wetland stabilizes erosion?	3	0	0	0	0	0	0	0	13
Q26_1	Nutrient source in buffer zone?	3	0	0	0	0	0	0	0	0
Q26_3*	Primary source of nutrients = channel flow?	1	0	0	0	0	0	0	0	0
Q27_1	Toxic source in buffer zone?	3	0 x 0.8	x 0.8	x 0.8	x 0.8	x 0.9	0	0	x 0.965
Q27_3*	Primary source of toxics = channel flow?	1	x 0.5	0	0	0	0	0	0	x 0.888
Q28	Has AA been Directly altered?	x 0.8	0	0	0	0	0	0	0	x 0.822
Q29_1	Dense understory edge?	2	3	1	3	3	3	0	0	11
Q29_2	Buffer zone slopes < 5%?	0	0	0	0	0	0	0	0	0
Q30	Is AA subject to frequent Human disturbance?	x 0.95	0	0	0	0	0	0	0	x 0.933
Q31_1	Area of Zone A + Zone B > Zone C?	4	0	0	0	0	3	0	0	7

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2 Otherwise multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q31_2	Area of Zone B > 10% of AA?	2	0	0	0	0	0	0	0	9
Q31_3	Area of Zone B > Zone A?	1	3	3	3	3	0	0	0	8
Q31_4	Area of submergent in Zone B > open water of Zones B + C	6	9	3	9	9	0	0	0	10
Q31_5	Area of Zone A >= 10% of Zone B and C?	0	0	0	0	1	3	0	0	0
Q31_6_A	emergent in Zone B = 0% of Zones B and C?	0	3	3	3	3	0	0	0	0
Q31_6_B	emergent in Zone B = 1% - 30% of Zones B and C?	2	3	3	3	3	1	0	0	12
Q31_6_C	emergent in Zone B = 31% - 60% of Zones B and C?	6	3	3	3	9	3	0	0	24
Q31_6_D	emergent in Zone B = 61% - 99% of Zones B and C?	18	1	1	1	3	3	0	0	41
Q31_6_E	emergent in Zone B = 100% of Zones B and C or not prese	0	0	0	0	0	3	0	0	0
Q32_A	Spatial Dominant Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q32_B	Spatial Dominant Hydroperiod = intermit exposed nontidal?	0	9	1	3	3	0	0	0	0
Q32_C	Spatial Dominant Hydroperiod = semiperm flooded nontidal	0	3	1	3	3	0	0	0	0
Q32_D	Spatial Dominant Hydroperiod = seasonally flooded nontidal	0	1	1	1	3	3	0	0	0
Q32_E	Spatial Dominant Hydroperiod = saturated nontidal?	0	**	0	1	0	1	0	0	0
Q32_F	Spatial Dominant Hydroperiod = temp flooded nontidal?	0	**	0	0	1	0	0	0	0
Q32_G	Spatial Dominant Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	1	0	0	0
Q32_H	Spatial Dominant Hydroperiod = artificially flooded nontidal?	0	0	9	9	9	0	0	0	0
Q32_I	Spatial Dominant Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q32_J	Spatial Dominant Hydroperiod = irregularly exposed tidal?	0	3	3	3	3	0	0	0	33
Q32_K	Spatial Dominant Hydroperiod = irregularly flooded tidal?	0	1	1	1	3	3	0	0	9
Q33_A*	Permanent Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q33_B*	Permanent Hydroperiod = intermit exposed nontidal?	0	3	1	3	3	0	0	0	0
Q33_C*	Permanent Hydroperiod = semiperm flooded nontidal?	0	3	1	3	3	0	0	0	0
Q33_D*	Permanent Hydroperiod = seasonally flooded nontidal?	0	1	1	1	3	3	0	0	0
Q33_E*	Permanent Hydroperiod = saturated nontidal?	0	**	0	0	0	1	0	0	0
Q33_F*	Permanent Hydroperiod = temp flooded nontidal?	0	**	0	0	0	1	0	0	0
Q33_G*	Permanent Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	0	0	0	0
Q33_H*	Permanent Hydroperiod = artificially flooded nontidal?	0	9	9	9	9	0	0	0	0
Q33_I*	Permanent Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q33_J*	Permanent Hydroperiod = irregularly exposed tidal?	0	9	3	3	3	0	0	0	33
Q33_K*	Permanent Hydroperiod = regularly flooded tidal?	0	0	1	1	3	3	0	0	9
Q34_1	Local dams?	3	0	0	0	0	3	0	0	15
Q34_2	Upstream impoundment?	0	0	0	0	0	0	0	0	0
Q34_3_1	Flooding due to downslope impoundment?	1	0	0	0	0	0	0	0	8
Q36_1_1	Average width of erect veg in Zones A and B < 20 feet?	0	0	0	0	3	0	0	0	0
Q36_1_2	Average width of erect veg in Zones A and B > 500 feet?	6	0	1	1	0	9	0	0	12
Q36_2_3	Avg width of erect veg (<0.5 height) in Zone B > 500 feet?	0	0	0	0	0	9	0	0	0
Q37	Open water (>2ft, w>6ft, l>1000ft)?	0	9	0	3	9	0	0	0	21
Q38_1	Perm flood or seas flood and other < 1 mi	0	9	1	3	3	0	0	0	0
Q38_2	(nontidal with erect veg) or 1 acre hardwood and other < 0.5	0	0	0	3	1	3	0	0	0
Q38_3	(estuarine/marine) or (fw palustrine/lacustrine) and other <	0	0	0	0	0	0	0	0	0
Q38_4	mudflat or tidal scrub-shrub and other adjacent	0	0	0	1	0	0	0	0	0
Q38_5	mudflat > 5 acre or emergent veg > 5 acre and other adja	0	3	9	9	9	0	0	0	0
Q38_6	agr/early succession or evergr forest>10 acres and other <	0	0	0	0	0	0	0	0	0
Q38_7	semiperm or seas flood or perm flood/intermit exposed and	0	0	3	3	9	0	0	0	0
Q39	Special habitat features?	0	0	1	3	3	9	0	0	0
Q40_2	Bottom water > 21 degrees C?	0	0	0	0	0	0	0	0	0
Q41_1	Peak flow velocity < 10 cm/s?	6	3	3	3	3	0	0	0	15
Q41_2	Peak flow velocity > 30 cm/s?	0	0	0	0	0	0	0	0	0
Q42_1_1	>1 acre or 10% of AA: 0<v<1 ft/sec	0	3	3	3	3	0	0	0	0
Q43_A	Dominant Water Depth < 1 inch	0	1	3	1	1	3	0	0	6

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q43_B	1 in < dominant water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q43_C	5 in < dwd < 8 inches	0	9	3	9	9	0	0	0	0
Q43_D	9 in < dominant water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q43_E	21 in < dominant water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q43_F	40 in < dominant water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q43_G	5 feet < dominant water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q43_H	6.5 feet < dominant water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q43_I	dominant water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q44_A*	Secondary Water Depth < 1 inch	0	0	3	1	1	3	0	0	6
Q44_B*	1 in < secondary water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q44_C*	5 in < secondary water depth < 8 inches	0	9	3	9	9	0	0	0	0
Q44_D*	9 in < secondary water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q44_E*	21 in < secondary water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q44_F*	40 in < secondary water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q44_G*	5 feet < secondary water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q44_H*	6.5 feet < secondary water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q44_I*	secondary water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q45_B	Substrate: Muck?	2	1	9	9	9	0	0	0	0
Q45_C	Substrate: peat?	6	1	9	9	9	0	0	0	0
Q45_D	Substrate: sand?	1	1	9	9	9	0	0	0	7
Q45_A	Substrate: mud?	2	1	9	9	9	1	0	0	8
Q45_E	Substrate: cobble-gravel?	0	0	0	0	0	0	0	0	13
Q45_F	Substrate: rubble?	0	0	0	0	0	0	0	0	13
Q46_B	Physical Habitat Interspersion = intermediate	0	3	0	1	3	0	0	0	0
Q46_C	Physical Habitat Interspersion = mosaic	1	9	0	3	9	0	0	0	14
Q48_A	Salinity < 0.5 ppt	1	0	0	0	1	1	0	0	0
Q49_1_1	20%-80% Pools?	0	3	0	9	9	0	0	0	0
Q49_1_2	Riffles?	0	0	0	0	0	0	0	0	0
Q49_2	Fish cover?	0	9	1	3	3	0	0	0	18
Q49_3	Carp prevalent in AA ?	0	0	0	3	0	0	0	0	0
Q50	Plants: waterfowl value?	0	3	3	1	9	1	0	0	0
Q51_2	Plant productivity > 1500 g/sq.m/yr	9	0	0	0	0	0	0	0	19
Q52_1	Freshwater Invertebrate Density > 500 sq.ft.	0	9	9	3	9	3	0	0	0
Q53_1	Tidal flat Invertebrate Density = "H"	0	3	9	9	9	1	0	0	0
Q55_1	Suspended Solids < 25 mg/l	0	3	0	1	0	0	0	0	0
Q55_3	Suspended Solids > 1200 mg/l	1	0	0	0	0	0	0	0	0
Q55_4	Suspended Solids > 4000 mg/l	3	0	0	0	0	0	0	0	0
Q61	DO limiting to fish?	0	x 0.7	0	0	0	0	0	0	x 0.934
Q63_1	Floodpeaks: inlet > outlet ?	0	0	0	0	0	0	0	0	0
Q63_2	Surface water inflows > outflows ?	1	0	0	0	0	0	0	0	0
Q64	Total Suspended Solids at inlet > outlet?	1	0	0	0	0	0	0	0	0
Q65_3	Warm Freshwater Fish present?	0	9	0	9	3	1	0	0	0
Q66_1_1	Group 1 Waterfowl Breeding present?	0	0	0	0	9	0	0	0	0
Q66_2_1	Waterfowl Group 1 Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_3	Black Duck Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_5	Mergansers Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_7	Bufflehead/Goldeneye Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_10	Geese Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q98	Presence of Eleocharis parvula	0	3	9	9	3	0	0	0	0
Q99	Proximity to public transportation	0	0	0	0	0	0	0	x 2	0

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
	Normalize by Dividing by (then multiply by 100)	130	101.65	84.8	112	208	97.2	3	38	394.82
									2.0175	

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

2H BASELINE

Table F-1  
Attribute Indicator Ranks

Ques	Summary	Social Significance							
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC CON
I1	Threatened/Endangered Species?	0	0	0	0	0	0	0	9 0
I3	State Listed Cultural Resource?	0	0	0	0	0	0	0	9 0
I4	Unusual or rare local type?	0	0	0	0	0	0	0	3 0
I6	Substantial previous \$ expenditure?	0	0	0	0	0	0	0	1 0
I8	Features sensitive to flooding?	0	0	0	0	0	0	1	0 0
I9	Downslope sensitive features in floodplain?	0	0	0	0	0	0	1	0 0
I18	Features in erosion prone areas?	0	0	0	0	0	0	1	0 0
I23	Education opportunity?	0	0	0	0	0	0	0	1 0
I24	Research resource?	0	0	0	0	0	0	0	1 0
I26	Recreation in deficient area?	0	0	0	0	0	0	0	3 0
I27	Recreation access point?	0	0	0	0	0	0	0	3 0
Q1_3	Freeze-over > one month?	0	0	0	0	0	0	0	0 0
Q2_1_1	Area < 5 acres?	0	0	0	0	0	0	0	0 x 0.965
Q2_1_1A	Area < 1 acre	0	0	1	1	1	0	0	0 0
Q2_1_2	Area > 40 acres?	4	0	0	0	0	0	0	0 21
Q2_1_2A	Area > 1 acre	0	1	3	3	3	9	0	0 0
Q2_1_3	Area > 200 acres?	12	1	3	3	3	9	0	0 63
Q2_2_1	Forested area < 5 acres?	0	0	0	0	0	0	0	0 0
Q2_2_1A	Forested area < 1 acre	0	0	0	0	0	1	0	0 0
Q2_2_1B	Forested area > 1 ac, < 40 acres	0	0	0	0	0	3	0	0 0
Q2_2_2	Forested area > 40 acres?	10	0	0	0	0	3	0	0 21
Q5_1_2	AA > 20% of watershed?	6	0	0	0	0	0	0	0 11
Q5_2	Upslope wet depressions > 5% of watershed?	0	0	0	0	0	0	0	0 0
Q5_3	AA outside annual floodplain?	0 x 0.8	0	0	0	0	0	0	0 0
Q7	v < 10 cm/s?	6	0	0	0	0	0	0	0 0
Q8_1	Permanent inlet?	2	9	1	1	3	0	0	0 14
Q8_2	Intermittent inlet?	2	3	1	1	1	0	0	0 8
Q8_3	Permanent outlet?	0	9	1	1	1	0	0	0 30
Q8_4	Intermittent outlet?	2	3	0	0	0	0	0	0 6
Q9_1	Outlet < one third average width?	2	0	0	0	0	0	0	0 0
Q9_2	Sheet flooding?	18	0	0	0	0	0	0	0 28
Q10_B	Palustrine?	2	0	0	0	0	9	0	0 10
Q10_D	Riverine tidal?	2	9	9	9	9	0	0	0 8
Q10_E	Estuarine?	2	3	3	3	3	3	0	0 18
Q11	Fringe or island wetland?	2	9	1	1	1	0	0	0 10
Q12_AB	Dominant veg: forested and needle-leaved evergreen	1	0	0	0	0	9	0	0 0
Q12_AC	Dominant veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0 0
Q12_AD	Dominant veg: forested and needle-leaved deciduous	1	0	0	0	0	0	0	0 0
Q12_AE	Dominant veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0 0
Q12_BB	Dominant veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	0	0	0 0
Q12_BC	Dominant veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	0	0	0 0
Q12_BD	Dominant veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	0	0	0 0
Q12_BE	Dominant veg: Scrub-shrub and broad-leaved deciduous	1	0	0	1	1	9	0	0 0
Q12_CA	Dominant veg: Aquatic bed and algal	2	9	1	3	9	0	0	0 6
Q12_CB	Dominant veg: Aquatic bed and floating vascular	2	9	1	9	9	0	0	0 10
Q12_CC	Dominant veg: Aquatic bed and rooted vascular	2	9	1	9	9	0	0	0 16
Q12_DA	Dominant veg: Emergent and persistent	6	1	1	1	3	3	0	0 16
Q12_DB	Dominant veg: Emergent and non-persistent	1	3	3	9	9	1	0	0 16
Q13_AA*	Secondary veg: forested and dead	0	0	0	1	0	3	0	0 0
Q13_AB*	Secondary veg: forested and needle-leaved evergreen	1	0	0	0	0	3	0	0 0
Q13_AC*	Secondary veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0 0

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise multiply by 0

SCORES FOR 2H FUTURE 134, AND  
2H FUTURE 200 ARE SAME AS FOR 20 FUTURE

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q13_AD*	Secondary veg: forested and needle-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_AE*	Secondary veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0
Q13_BA*	Secondary veg: Scrub-shrub and dead	0	0	0	0	0	1	0	0	0
Q13_BB*	Secondary veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BC*	Secondary veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BD*	Secondary veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	3	0	0	0
Q13_BE*	Secondary veg: Scrub-shrub and broad-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_CA*	Secondary veg: Aquatic bed and algal	2	3	1	3	3	0	0	0	6
Q13_CB*	Secondary veg: Aquatic bed and floating vascular	2	3	1	3	3	0	0	0	10
Q13_CC*	Secondary veg: Aquatic bed and rooted vascular	2	3	1	3	3	0	0	0	16
Q13_DB*	Secondary veg: Emergent and non-persistent	1	1	1	1	3	1	0	0	16
Q14_1	AA on 25 square foot island?	0	0	9	3	9	3	0	0	7
Q14_2	AA on 2 acre island?	0	0	0	0	0	0	0	0	13
Q15_1_A	Vegetation<-->Water = solid form	2	1	1	1	1	3	0	0	7
Q15_1_B	Vegetation<-->Water = intermediate	4	3	3	3	3	3	0	0	20
Q15_1_C	Vegetation<-->Water = checkerboard	4	9	9	9	9	1	0	0	47
Q15_2	Channel flow spreading?	18	9	1	9	9	0	0	0	39
Q16_A	Vegetation class = solid	0	0	1	1	1	1	0	0	0
Q16_B	Vegetation class = intermediate	0	0	1	1	3	3	0	0	0
Q16_C	Vegetation class = mosaic	0	0	1	1	3	9	0	0	0
Q17	Plant form richness	0	0	0	1	3	9	0	0	0
Q18	Upland<-->Wetland edge irregular?	1	3	3	3	3	3	0	0	6
Q19_1_A	Wind shelter?	1	0	9	9	9	0	0	0	13
Q19_1_B	Wind shelter + fetch?	0	0	0	0	0	0	0	0	0
Q19_2	Wave protection?	3	1	3	3	3	0	0	0	9
Q19_3	Upland habitat wind shelter?	0	0	0	0	1	1	0	0	0
Q20_1	Zone B shaded?	0	3	0	0	1	0	0	0	0
Q20_2	Balance sun<-->shade?	0	0	0	0	0	0	0	0	0
Q21_A	Subwatershed dominant land cover: forest and scrub?	0	0	0	0	0	9	0	0	0
Q21_E	Subwatershed dominant land cover: urban lawn/fill?	0	0	0	0	1	0	0	0	0
Q22_1_1	AA contains a Channel?	0	3	1	3	3	0	0	0	10
Q22_1_2	AA contains a Sinuous channel?	2	3	0	0	3	0	0	0	0
Q23	Is the AA Channelized?	0 x 0.8	0	0	0	0	0	0	0	0
Q24_2	Fine mineral soils?	4	0	0	0	0	0	0	0	0
Q24_4	Slow percolation in watershed?	1	0	0	0	0	0	0	0	0
Q25_1	Source of Inorganic sediment in buffer zone?	0 x 0.95	0	0	0	0	0	0	0	0
Q25_2_A	Primary source of sediment = sheetflow?	10	0	0	0	0	0	0	0	20
Q25_2_B*	Primary source of sediment = channel flow?	1	0	0	0	0	0	0	0	0
Q25_3	Wetland stabilizes erosion?	3	0	0	0	0	0	0	0	13
Q26_1	Nutrient source in buffer zone?	3	0	0	0	0	0	0	0	0
Q26_2	Primary source of nutrients = sheetflow?	9	0	0	0	0	0	0	0	0
Q26_3*	Primary source of nutrients = channel flow?	1	0	0	0	0	0	0	0	0
Q27_1	Toxic source in buffer zone?	3	0 x 0.8	x 0.8	x 0.8	x 0.9	0	0	x 0.965	
Q27_2	Primary source of toxics = sheetflow?	9 x 0.7	0	0	0	0	0	0	x 0.934	
Q27_3*	Primary source of toxics = channel flow?	1 x 0.5	0	0	0	0	0	0	x 0.888	
Q28	Has AA been Directly altered?	x 0.8	0	0	0	0	0	0	x 0.822	
Q29_1	Dense understory edge?	2	3	1	3	3	3	0	0	11
Q29_2	Buffer zone slopes < 5%?	0	0	0	0	0	0	0	0	0
Q30	Is AA subject to frequent Human disturbance?	x 0.95	0	0	0	0	0	0	x 0.933	
Q31_1	Area of Zone A + Zone B > Zone C?	4	0	0	0	0	3	0	0	7

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q31_2	Area of Zone B > 10% of AA?	2	0	0	0	0	0	0	0	9
Q31_3	Area of Zone B > Zone A?	1	3	3	3	3	0	0	0	8
Q31_4	Area of submergent in Zone B > open water of Zones B + C	6	9	3	9	9	0	0	0	10
Q31_5	Area of Zone A >= 10% of Zone B and C?	0	0	0	0	1	3	0	0	0
Q31_6_A	emergent in Zone B = 0% of Zones B and C?	0	3	3	3	3	0	0	0	.0
Q31_6_B	emergent in Zone B = 1% - 30% of Zones B and C?	2	3	3	3	3	1	0	0	12
Q31_6_C	emergent in Zone B = 31% - 60% of Zones B and C?	6	3	3	3	9	3	0	0	24
Q31_6_D	emergent in Zone B = 61% - 99% of Zones B and C?	18	1	1	1	3	3	0	0	41
Q31_6_E	emergent in Zone B = 100% of Zones B and C or not prese	0	0	0	0	0	3	0	0	0
Q32_A	Spatial Dominant Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q32_B	Spatial Dominant Hydroperiod = intermit exposed nontidal?	0	9	1	3	3	0	0	0	0
Q32_C	Spatial Dominant Hydroperiod = semiperm flooded nontidal	0	3	1	3	3	0	0	0	0
Q32_D	Spatial Dominant Hydroperiod = seasonally flooded nontidal	0	1	1	1	3	3	0	0	0
Q32_E	Spatial Dominant Hydroperiod = saturated nontidal?	0	**	0	1	0	1	0	0	0
Q32_F	Spatial Dominant Hydroperiod = temp flooded nontidal?	0	**	0	0	1	0	0	0	0
Q32_G	Spatial Dominant Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	1	0	0	0
Q32_H	Spatial Dominant Hydroperiod = artificially flooded nontidal?	0	0	9	9	9	0	0	0	0
Q32_I	Spatial Dominant Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q32_J	Spatial Dominant Hydroperiod = irregularly exposed tidal?	0	3	3	3	3	0	0	0	33
Q32_K	Spatial Dominant Hydroperiod = irregularly flooded tidal?	0	1	1	1	3	3	0	0	9
Q33_A*	Permanent Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q33_B*	Permanent Hydroperiod = intermit exposed nontidal?	0	3	1	3	3	0	0	0	0
Q33_C*	Permanent Hydroperiod = semiperm flooded nontidal?	0	3	1	3	3	0	0	0	0
Q33_D*	Permanent Hydroperiod = seasonally flooded nontidal?	0	1	1	1	3	3	0	0	0
Q33_E*	Permanent Hydroperiod = saturated nontidal?	0	**	0	0	0	1	0	0	0
Q33_F*	Permanent Hydroperiod = temp flooded nontidal?	0	**	0	0	0	1	0	0	0
Q33_G*	Permanent Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	0	0	0	0
Q33_H*	Permanent Hydroperiod = artificially flooded nontidal?	0	9	9	9	9	0	0	0	0
Q33_I*	Permanent Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q33_J*	Permanent Hydroperiod = irregularly exposed tidal?	0	9	3	3	3	0	0	0	33
Q33_K*	Permanent Hydroperiod = irregularly flooded tidal?	0	0	1	1	3	3	0	0	9
Q34_1	Local dams?	3	0	0	0	0	3	0	0	15
Q34_2	Upstream impoundment?	0	0	0	0	0	0	0	0	0
Q34_3_1	Flooding due to downslope impoundment?	1	0	0	0	0	0	0	0	8
Q36_1_1	Average width of erect veg in Zones A and B < 20 feet?	0	0	0	0	3	0	0	0	0
Q36_1_2	Average width of erect veg in Zones A and B > 500 feet?	6	0	1	1	0	9	0	0	12
Q36_2_3	Avg width of erect veg (d<0.5 height) in Zone B > 500 feet?	0	0	0	0	0	9	0	0	0
Q37	Open water (d>2ft,w>6ft,l>1000ft)?	0	9	0	3	9	0	0	0	21
Q38_1	Perm flood or seas flood and other < 1 mi	0	9	1	3	3	0	0	0	0
Q38_2	(nontidal with erect veg) or 1 acre hardwood and other < 0.5	0	0	0	3	1	3	0	0	0
Q38_3	(estuarine/marine) or (fw palustrine/lacustrine) and other <	0	0	0	0	0	0	0	0	0
Q38_4	mudflat or tidal scrub-shrub and other adjacent	0	0	0	1	0	0	0	0	0
Q38_5	mudflat > 5 acre or emergent veg > 5 acre and other adja	0	3	9	9	9	0	0	0	0
Q38_6	agr/early succession or evergr forest>10 acres and other <	0	0	0	0	0	0	0	0	0
Q38_7	semiperm or seas flood or perm flood/intermit exposed and	0	0	3	3	9	0	0	0	0
Q39	Special habitat features?	0	0	1	3	3	9	0	0	0
Q40_2	Bottom water > 21 degrees C?	0	0	0	0	0	0	0	0	0
Q41_1	Peak flow velocity < 10 cm/s?	6	3	3	3	3	0	0	0	15
Q41_2	Peak flow velocity > 30 cm/s?	0	0	0	0	0	0	0	0	0
Q42_1_1	>1 acre or 10% of AA: 0<v<1 ft/sec	0	3	3	3	3	0	0	0	0
Q43_A	Dominant Water Depth < 1 inch	0	1	3	1	1	3	0	0	6

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q43_B	1 in < dominant water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q43_C	5 in < dwd < 8 inches	0	9	3	9	9	0	0	0	0
Q43_D	9 in < dominant water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q43_E	21 in < dominant water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q43_F	40 in < dominant water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q43_G	5 feet < dominant water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q43_H	6.5 feet < dominant water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q43_I	dominant water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q44_A*	Secondary Water Depth < 1 inch	0	0	3	1	1	3	0	0	6
Q44_B*	1 in < secondary water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q44_C*	5 in < secondary water depth < 8 inches	0	9	3	9	9	0	0	0	0
Q44_D*	9 in < secondary water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q44_E*	21 in < secondary water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q44_F*	40 in < secondary water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q44_G*	5 feet < secondary water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q44_H*	6.5 feet < secondary water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q44_I*	secondary water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q45_B	Substrate: Muck?	2	1	9	9	9	0	0	0	0
Q45_C	Substrate: peat?	6	1	9	9	9	0	0	0	0
Q45_D	Substrate: sand?	1	1	9	9	9	0	0	0	7
Q45_A	Substrate: mud?	2	1	9	9	9	1	0	0	8
Q45_E	Substrate: cobble-gravel?	0	0	0	0	0	0	0	0	13
Q45_F	Substrate: rubble?	0	0	0	0	0	0	0	0	13
Q46_B	Physical Habitat Interspersion = intermediate	0	3	0	1	3	0	0	0	0
Q46_C	Physical Habitat Interspersion = mosaic	1	9	0	3	9	0	0	0	14
Q48_A	Salinity < 0.5 ppt	1	0	0	0	1	1	0	0	0
Q49_1_1	20%-80% Pools?	0	3	0	9	9	0	0	0	0
Q49_1_2	Riffles?	0	0	0	0	0	0	0	0	0
Q49_2	Fish cover?	0	9	1	3	3	0	0	0	18
Q49_3	Carp prevalent in AA ?	0	0	0	3	0	0	0	0	0
Q50	Plants: waterfowl value?	0	3	3	1	9	1	0	0	0
Q51_2	Plant productivity > 1500 g/sq.m/yr	9	0	0	0	0	0	0	0	19
Q52_1	Freshwater Invertebrate Density > 500 sq.ft.	0	9	9	3	9	3	0	0	0
Q53_1	Tidal flat Invertebrate Density = "H"	0	3	9	9	9	1	0	0	0
Q55_1	Suspended Solids < 25 mg/l	0	3	0	1	0	0	0	0	0
Q55_3	Suspended Solids > 1200 mg/l	1	0	0	0	0	0	0	0	0
Q55_4	Suspended Solids > 4000 mg/l	3	0	0	0	0	0	0	0	0
Q61	DO limiting to fish?	0	x 0.7	0	0	0	0	0	0	x 0.934
Q63_1	Floodpeaks: inlet > outlet ?	0	0	0	0	0	0	0	0	0
Q63_2	Surface water inflows > outflows ?	1	0	0	0	0	0	0	0	0
Q64	Total Suspended Solids at inlet > outlet?	1	0	0	0	0	0	0	0	0
Q65_3	Warm Freshwater Fish present?	0	9	0	9	3	1	0	0	0
Q66_1_1	Group 1 Waterfowl Breeding present?	0	0	0	0	9	0	0	0	0
Q66_2_1	Waterfowl Group 1 Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_3	Black Duck Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_5	Mergansers Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_7	Bufflehead/Goldeneye Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_10	Geese Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q98	Presence of Eleocharis parvula	0	3	9	9	3	0	0	0	0
Q99	Proximity to public transportation	0	0	0	0	0	0	0	x 2	0

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

# 2N BASELINE

Table F-1  
Attribute Indicator Ranks

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
I1	Threatened/Endangered Species?	0	0	0	0	0	0	0	9	0
I3	State Listed Cultural Resource?	0	0	0	0	0	0	0	9	0
I4	Unusual or rare local type?	0	0	0	0	0	0	0	3	0
I6	Substantial previous \$ expenditure?	0	0	0	0	0	0	0	1	0
I8	Features sensitive to flooding?	0	0	0	0	0	0	1	0	0
I9	Downslope sensitive features in floodplain?	0	0	0	0	0	0	1	0	0
I18	Features in erosion prone areas?	0	0	0	0	0	0	1	0	0
I23	Education opportunity?	0	0	0	0	0	0	0	1	0
I24	Research resource?	0	0	0	0	0	0	0	1	0
I26	Recreation in deficient area?	0	0	0	0	0	0	0	3	0
I27	Recreation access point?	0	0	0	0	0	0	0	3	0
Q1_3	Freeze-over > one month?	0	0	0	0	0	0	0	0	0
Q2_1_1	Area < 5 acres?	0	0	0	0	0	0	0	0	x 0.965
Q2_1_1A	Area < 1 acre	0	0	1	1	1	0	0	0	0
Q2_1_2	Area > 40 acres?	4	0	0	0	0	0	0	0	21
Q2_1_2A	Area > 1 acre	0	1	3	3	3	9	0	0	0
Q2_1_3	Area > 200 acres?	12	1	3	3	3	9	0	0	63
Q2_2_1	Forested area < 5 acres?	0	0	0	0	0	0	0	0	0
Q2_2_1A	Forested area < 1 acre	0	0	0	0	0	1	0	0	0
Q2_2_1B	Forested area > 1 ac, < 40 acres	0	0	0	0	0	3	0	0	0
Q2_2_2	Forested area > 40 acres?	10	0	0	0	0	3	0	0	21
Q5_1_2	AA > 20% of watershed?	6	0	0	0	0	0	0	0	11
Q5_2	Upslope wet depressions > 5% of watershed?	0	0	0	0	0	0	0	0	0
Q5_3	AA outside annual floodplain?	0	x 0.8	0	0	0	0	0	0	0
Q7	v < 10 cm/s?	6	0	0	0	0	0	0	0	0
Q8_1	Permanent inlet?	2	9	1	1	3	0	0	0	14
Q8_2	Intermittent inlet?	2	3	1	1	1	0	0	0	8
Q8_3	Permanent outlet?	0	9	1	1	1	0	0	0	30
Q8_4	Intermittent outlet?	2	3	0	0	0	0	0	0	6
Q9_1	Outlet < one third average width?	2	0	0	0	0	0	0	0	0
Q9_2	Sheet flooding?	18	0	0	0	0	0	0	0	28
Q10_B	Palustrine?	2	0	0	0	0	9	0	0	10
Q10_D	Riverine tidal?	2	9	9	9	9	0	0	0	8
Q10_E	Estuarine?	2	3	3	3	3	3	0	0	18
Q11	Fringe or island wetland?	2	9	1	1	1	0	0	0	10
Q12_AB	Dominant veg: forested and needle-leaved evergreen	1	0	0	0	0	9	0	0	0
Q12_AC	Dominant veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_AD	Dominant veg: forested and needle-leaved deciduous	1	0	0	0	0	0	0	0	0
Q12_AE	Dominant veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0
Q12_BB	Dominant veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_BC	Dominant veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_BD	Dominant veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	0	0	0	0
Q12_BE	Dominant veg: Scrub-shrub and broad-leaved deciduous	1	0	0	1	1	9	0	0	0
Q12_CA	Dominant veg: Aquatic bed and algal	2	9	1	3	9	0	0	0	6
Q12_CB	Dominant veg: Aquatic bed and floating vascular	2	9	1	9	9	0	0	0	10
Q12_CC	Dominant veg: Aquatic bed and rooted vascular	2	9	1	9	9	0	0	0	16
Q12_DA	Dominant veg: Emergent and persistent	6	1	1	1	3	3	0	0	16
Q12_DB	Dominant veg: Emergent and non-persistent	1	3	3	9	9	1	0	0	16
Q13_AA*	Secondary veg: forested and dead	0	0	0	1	0	3	0	0	0
Q13_AB*	Secondary veg: forested and needle-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_AC*	Secondary veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0	0

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

SCORES FOR 2N FUTURE 134 ACRE AND

ON FUTURE 20% ACRE ARE THE SAME AS FOR THE BASELINE

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
	Normalize by Dividing by (then multiply by 100)	130	101.65	84.8	112	208	97.2	3	38	394.82
									2.0175	

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q13_AD*	Secondary veg: forested and needle-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_AE*	Secondary veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0
Q13_BA*	Secondary veg: Scrub-shrub and dead	0	0	0	0	0	1	0	0	0
Q13_BB*	Secondary veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BC*	Secondary veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BD*	Secondary veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	3	0	0	0
Q13_BE*	Secondary veg: Scrub-shrub and broad-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_CA*	Secondary veg: Aquatic bed and algal	2	3	1	3	3	0	0	0	6
Q13_CB*	Secondary veg: Aquatic bed and floating vascular	2	3	1	3	3	0	0	0	10
Q13_CC*	Secondary veg: Aquatic bed and rooted vascular	2	3	1	3	3	0	0	0	16
Q13_DB*	Secondary veg: Emergent and non-persistent	1	1	1	1	3	1	0	0	16
Q14_1	AA on 25 square foot island?	0	0	9	3	9	3	0	0	7
Q14_2	AA on 2 acre island?	0	0	0	0	0	0	0	0	13
Q15_1_A	Vegetation<-->Water = solid form	2	1	1	1	1	3	0	0	7
Q15_1_B	Vegetation<-->Water = intermediate	4	3	3	3	3	3	0	0	20
Q15_1_C	Vegetation<-->Water = checkerboard	4	9	9	9	9	1	0	0	47
Q15_2	Channel flow spreading?	18	9	1	9	9	0	0	0	39
Q16_A	Vegetation class = solid	0	0	1	1	1	1	0	0	0
Q16_B	Vegetation class = intermediate	0	0	1	1	3	3	0	0	0
Q16_C	Vegetation class = mosaic	0	0	1	1	3	9	0	0	0
Q17	Plant form richness	0	0	0	1	3	9	0	0	0
Q18	Upland<-->Wetland edge irregular?	1	3	3	3	3	3	0	0	6
Q19_1_A	Wind shelter?	1	0	9	9	9	0	0	0	13
Q19_1_B	Wind shelter + fetch?	0	0	0	0	0	0	0	0	0
Q19_2	Wave protection?	3	1	3	3	3	0	0	0	9
Q19_3	Upland habitat wind shelter?	0	0	0	0	1	1	0	0	0
Q20_1	Zone B shaded?	0	3	0	0	1	0	0	0	0
Q20_2	Balance sun<-->shade?	0	0	0	0	0	0	0	0	0
Q21_A	Subwatershed dominant land cover: forest and scrub?	0	0	0	0	0	9	0	0	0
Q21_E	Subwatershed dominant land cover: urban lawn/fill?	0	0	0	0	1	0	0	0	0
Q22_1_1	AA contains a Channel?	0	3	1	3	3	0	0	0	10
Q22_1_2	AA contains a Sinuous channel?	2	3	0	0	3	0	0	0	0
Q23	Is the AA Channelized?	0	x 0.8	0	0	0	0	0	0	0
Q24_2	Fine mineral soils?	4	0	0	0	0	0	0	0	0
Q24_4	Slow percolation in watershed?	1	0	0	0	0	0	0	0	0
Q25_1	Source of Inorganic sediment in buffer zone?	0	x 0.95	0	0	0	0	0	0	0
Q25_2_A	Primary source of sediment = sheetflow?	10	0	0	0	0	0	0	0	20
Q25_2_B*	Primary source of sediment = channel flow?	1	0	0	0	0	0	0	0	0
Q25_3	Wetland stabilizes erosion?	3	0	0	0	0	0	0	0	13
Q26_1	Nutrient source in buffer zone?	3	0	0	0	0	0	0	0	0
Q26_2	Primary source of nutrients = sheetflow?	9	0	0	0	0	0	0	0	0
Q26_3*	Primary source of nutrients = channel flow?	1	0	0	0	0	0	0	0	0
Q27_1	Toxic source in buffer zone?	3	0	x 0.8	x 0.8	x 0.8	x 0.9	0	0	x 0.965
Q27_2	Primary source of toxics = sheetflow?	9	x 0.7	0	0	0	0	0	0	x 0.934
Q27_3*	Primary source of toxics = channel flow?	1	x 0.5	0	0	0	0	0	0	x 0.888
Q28	Has AA been Directly altered?	x 0.8	0	0	0	0	0	0	0	x 0.822
Q29_1	Dense understory edge?	2	3	1	3	3	3	0	0	11
Q29_2	Buffer zone slopes < 5%?	0	0	0	0	0	0	0	0	0
Q30	Is AA subject to frequent Human disturbance?	x 0.95	0	0	0	0	0	0	0	x 0.933
Q31_1	Area of Zone A + Zone B > Zone C?	4	0	0	0	0	3	0	0	7

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q31_2	Area of Zone B > 10% of AA?	2	0	0	0	0	0	0	0	9
Q31_3	Area of Zone B > Zone A?	1	3	3	3	3	0	0	0	8
Q31_4	Area of submergent in Zone B > open water of Zones B + C	6	9	3	9	9	0	0	0	10
Q31_5	Area of Zone A >= 10% of Zone B and C?	0	0	0	0	1	3	0	0	0
Q31_6_A	emergent in Zone B = 0% of Zones B and C?	0	3	3	3	3	0	0	0	0
Q31_6_B	emergent in Zone B = 1% - 30% of Zones B and C?	2	3	3	3	3	1	0	0	12
Q31_6_C	emergent in Zone B = 31% - 60% of Zones B and C?	6	3	3	3	9	3	0	0	24
Q31_6_D	emergent in Zone B = 61% - 99% of Zones B and C?	18	1	1	1	3	3	0	0	41
Q31_6_E	emergent in Zone B = 100% of Zones B and C or not prese	0	0	0	0	0	3	0	0	0
Q32_A	Spatial Dominant Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q32_B	Spatial Dominant Hydroperiod = intermit exposed nontidal?	0	9	1	3	3	0	0	0	0
Q32_C	Spatial Dominant Hydroperiod = semiperm flooded nontidal	0	3	1	3	3	0	0	0	0
Q32_D	Spatial Dominant Hydroperiod = seasonally flooded nontidal	0	1	1	1	3	3	0	0	0
Q32_E	Spatial Dominant Hydroperiod = saturated nontidal?	0	**	0	1	0	1	0	0	0
Q32_F	Spatial Dominant Hydroperiod = temp flooded nontidal?	0	**	0	0	1	0	0	0	0
Q32_G	Spatial Dominant Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	1	0	0	0
Q32_H	Spatial Dominant Hydroperiod = artificially flooded nontidal?	0	0	9	9	9	0	0	0	0
Q32_I	Spatial Dominant Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q32_J	Spatial Dominant Hydroperiod = irregularly exposed tidal?	0	3	3	3	3	0	0	0	33
Q32_K	Spatial Dominant Hydroperiod = irregularly flooded tidal?	0	1	1	1	3	3	0	0	9
Q33_A*	Permanent Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q33_B*	Permanent Hydroperiod = intermit exposed nontidal?	0	3	1	3	3	0	0	0	0
Q33_C*	Permanent Hydroperiod = semiperm flooded nontidal?	0	3	1	3	3	0	0	0	0
Q33_D*	Permanent Hydroperiod = seasonally flooded nontidal?	0	1	1	1	3	3	0	0	0
Q33_E*	Permanent Hydroperiod = saturated nontidal?	0	**	0	0	0	1	0	0	0
Q33_F*	Permanent Hydroperiod = temp flooded nontidal?	0	**	0	0	0	1	0	0	0
Q33_G*	Permanent Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	0	0	0	0
Q33_H*	Permanent Hydroperiod = artificially flooded nontidal?	0	9	9	9	9	0	0	0	0
Q33_I*	Permanent Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q33_J*	Permanent Hydroperiod = irregularly exposed tidal?	0	9	3	3	3	0	0	0	33
Q33_K*	Permanent Hydroperiod = irregularly flooded tidal?	0	0	1	1	3	3	0	0	9
Q34_1	Local dams?	3	0	0	0	0	3	0	0	15
Q34_2	Upstream impoundment?	0	0	0	0	0	0	0	0	0
Q34_3_1	Flooding due to downslope impoundment?	1	0	0	0	0	0	0	0	8
Q36_1_1	Average width of erect veg in Zones A and B < 20 feet?	0	0	0	0	3	0	0	0	0
Q36_1_2	Average width of erect veg in Zones A and B > 500 feet?	6	0	1	1	0	9	0	0	12
Q36_2_3	Avg width of erect veg (d<0.5 height) in Zone B > 500 feet?	0	0	0	0	0	9	0	0	0
Q37	Open water (d>2ft,w>6ft,l>1000ft)?	0	9	0	3	9	0	0	0	21
Q38_1	Perm flood or seas flood and other < 1 mi	0	9	1	3	3	0	0	0	0
Q38_2	(nontidal with erect veg) or 1 acre hardwood and other < 0.5	0	0	0	3	1	3	0	0	0
Q38_3	(estuarine/marine) or (fw palustrine/lacustrine) and other <	0	0	0	0	0	0	0	0	0
Q38_4	mudflat or tidal scrub-shrub and other adjacent	0	0	0	1	0	0	0	0	0
Q38_5	mudflat > 5 acre or emergent veg > 5 acre and other adja	0	3	9	9	9	0	0	0	0
Q38_6	agr/early succession or evergr forest>10 acres and other <	0	0	0	0	0	0	0	0	0
Q38_7	semiperm or seas flood or perm flood/intermit exposed and	0	0	3	3	9	0	0	0	0
Q39	Special habitat features?	0	0	1	3	3	9	0	0	0
Q40_2	Bottom water > 21 degrees C?	0	0	0	0	0	0	0	0	0
Q41_1	Peak flow velocity < 10 cm/s?	6	3	3	3	3	0	0	0	15
Q41_2	Peak flow velocity > 30 cm/s?	0	0	0	0	0	0	0	0	0
Q42_1_1	>1 acre or 10% of AA: 0<v<1 ft/sec	0	3	3	3	3	0	0	0	0
Q43_A	Dominant Water Depth < 1 inch	0	1	3	1	1	3	0	0	6

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q43_B	1 in < dominant water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q43_C	5 in < dwd < 8 inches	0	9	3	9	9	0	0	0	0
Q43_D	9 in < dominant water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q43_E	21 in < dominant water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q43_F	40 in < dominant water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q43_G	5 feet < dominant water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q43_H	6.5 feet < dominant water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q43_I	dominant water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q44_A*	Secondary Water Depth < 1 inch	0	0	3	1	1	3	0	0	6
Q44_B*	1 in < secondary water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q44_C*	5 in < secondary water depth < 8 inches	0	9	3	9	9	0	0	0	0
Q44_D*	9 in < secondary water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q44_E*	21 in < secondary water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q44_F*	40 in < secondary water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q44_G*	5 feet < secondary water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q44_H*	6.5 feet < secondary water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q44_I*	secondary water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q45_B	Substrate: Muck?	2	1	9	9	9	0	0	0	0
Q45_C	Substrate: peat?	6	1	9	9	9	0	0	0	0
Q45_D	Substrate: sand?	1	1	9	9	9	0	0	0	7
Q45_A	Substrate: mud?	2	1	9	9	9	1	0	0	8
Q45_E	Substrate: cobble-gravel?	0	0	0	0	0	0	0	0	13
Q45_F	Substrate: rubble?	0	0	0	0	0	0	0	0	13
Q46_B	Physical Habitat Interspersion = intermediate	0	3	0	1	3	0	0	0	0
Q46_C	Physical Habitat Interspersion = mosaic	1	9	0	3	9	0	0	0	14
Q48_A	Salinity < 0.5 ppt	1	0	0	0	1	1	0	0	0
Q49_1_1	20%-80% Pools?	0	3	0	9	9	0	0	0	0
Q49_1_2	Riffles?	0	0	0	0	0	0	0	0	0
Q49_2	Fish cover?	0	9	1	3	3	0	0	0	18
Q49_3	Carp prevalent in AA ?	0	0	0	3	0	0	0	0	0
Q50	Plants: waterfowl value?	0	3	3	1	9	1	0	0	0
Q51_2	Plant productivity > 1500 g/sq.m/yr	9	0	0	0	0	0	0	0	19
Q52_1	Freshwater Invertebrate Density > 500 sq.ft.	0	9	9	3	9	3	0	0	0
Q53_1	Tidal flat Invertebrate Density = "H"	0	3	9	9	9	1	0	0	0
Q55_1	Suspended Solids < 25 mg/l	0	3	0	1	0	0	0	0	0
Q55_3	Suspended Solids > 1200 mg/l	1	0	0	0	0	0	0	0	0
Q55_4	Suspended Solids > 4000 mg/l	3	0	0	0	0	0	0	0	0
Q61	DO limiting to fish?	0	x 0.7	0	0	0	0	0	0	x 0.934
Q63_1	Floodpeaks: inlet > outlet ?	0	0	0	0	0	0	0	0	0
Q63_2	Surface water inflows > outflows ?	1	0	0	0	0	0	0	0	0
Q64	Total Suspended Solids at inlet > outlet?	1	0	0	0	0	0	0	0	0
Q66_3	Warm Freshwater Fish present?	0	9	0	9	3	1	0	0	0
Q66_1_1	Group 1 Waterfowl Breeding present?	0	0	0	0	9	0	0	0	0
Q66_2_1	Waterfowl Group 1 Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_3	Black Duck Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_5	Mergansers Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_7	Bufflehead/Goldeneye Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_10	Geese Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q98	Presence of Eleocharis parvula	0	3	9	9	3	0	0	0	0
Q99	Proximity to public transportation	0	0	0	0	0	0	0	x 2	0

\* Special instructions for this indicator See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
	Normalize by Dividing by (then multiply by 100)	130	101.65	84.8	112	208	97.2	3	38	394.82
									2.0175	

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

2T BASELINE.

Table F-1  
Attribute Indicator Ranks

Ques	Summary	Social Significance							
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC CON
I1	Threatened/Endangered Species?	0	0	0	0	0	0	0	9 0
I3	State Listed Cultural Resource?	0	0	0	0	0	0	0	9 0
I4	Unusual or rare local type?	0	0	0	0	0	0	0	3 0
I6	Substantial previous \$ expenditure?	0	0	0	0	0	0	0	1 0
I8	Features sensitive to flooding?	0	0	0	0	0	0	1	0 0
I9	Downslope sensitive features in floodplain?	0	0	0	0	0	0	1	0 0
I18	Features in erosion prone areas?	0	0	0	0	0	0	1	0 0
I23	Education opportunity?	0	0	0	0	0	0	0	1 0
I24	Research resource?	0	0	0	0	0	0	0	1 0
I26	Recreation in deficient area?	0	0	0	0	0	0	0	3 0
I27	Recreation access point?	0	0	0	0	0	0	0	3 0
Q1_3	Freeze-over > one month?	0	0	0	0	0	0	0	0 0
Q2_1_1	Area < 5 acres?	0	0	0	0	0	0	0	0 x 0.965
Q2_1_1A	Area < 1 acre	0	0	1	1	1	0	0	0 0
Q2_1_2	Area > 40 acres?	4	0	0	0	0	0	0	0 21
Q2_1_2A	Area > 1 acre	0	1	3	3	3	9	0	0 0
Q2_1_3	Area > 200 acres?	12	1	3	3	3	9	0	0 63
Q2_2_1	Forested area < 5 acres ?	0	0	0	0	0	0	0	0 0
Q2_2_1A	Forested area < 1 acre	0	0	0	0	0	1	0	0 0
Q2_2_1B	Forested area > 1 ac, < 40 acres	0	0	0	0	0	3	0	0 0
Q2_2_2	Forested area > 40 acres ?	10	0	0	0	0	3	0	0 21
Q5_1_2	AA > 20% of watershed?	6	0	0	0	0	0	0	0 11
Q5_2	Upslope wet depressions > 5% of watershed?	0	0	0	0	0	0	0	0 0
Q5_3	AA outside annual floodplain ?	0 x 0.8	0	0	0	0	0	0	0 0
Q7	v < 10 cm/s?	6	0	0	0	0	0	0	0 0
Q8_1	Permanent inlet?	2	9	1	1	3	0	0	0 14
Q8_2	Intermittent inlet?	2	3	1	1	1	0	0	0 8
Q8_3	Permanent outlet?	0	9	1	1	1	0	0	0 30
Q8_4	Intermittent outlet?	2	3	0	0	0	0	0	0 6
Q9_1	Outlet < one third average width?	2	0	0	0	0	0	0	0 0
Q9_2	Sheet flooding?	18	0	0	0	0	0	0	0 26
Q10_B	Palustrine?	2	0	0	0	0	9	0	0 10
Q10_D	Riverine tidal?	2	9	9	9	9	0	0	0 8
Q10_E	Estuarine?	2	3	3	3	3	3	0	0 18
Q11	Fringe or island wetland?	2	9	1	1	1	0	0	0 10
Q12_AB	Dominant veg: forested and needle-leaved evergreen	1	0	0	0	0	9	0	0 0
Q12_AC	Dominant veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0 0
Q12_AD	Dominant veg: forested and needle-leaved deciduous	1	0	0	0	0	0	0	0 0
Q12_AE	Dominant veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0 0
Q12_BB	Dominant veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	0	0	0 0
Q12_BC	Dominant veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	0	0	0 0
Q12_BD	Dominant veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	0	0	0 0
Q12_BE	Dominant veg: Scrub-shrub and broad-leaved deciduous	1	0	0	1	1	9	0	0 0
Q12_CA	Dominant veg: Aquatic bed and algal	2	9	1	3	9	0	0	0 6
Q12_CB	Dominant veg: Aquatic bed and floating vascular	2	9	1	9	9	0	0	0 10
Q12_CC	Dominant veg: Aquatic bed and rooted vascular	2	9	1	9	9	0	0	0 16
Q12_DA	Dominant veg: Emergent and persistent	6	1	1	1	3	3	0	0 16
Q12_DB	Dominant veg: Emergent and non-persistent	1	3	3	9	9	1	0	0 16
Q13_AA*	Secondary veg: forested and dead	0	0	0	1	0	3	0	0 0
Q13_AB*	Secondary veg: forested and needle-leaved evergreen	1	0	0	0	0	3	0	0 0
Q13_AC*	Secondary veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0 0

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q13_AD*	Secondary veg: forested and needle-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_AE*	Secondary veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0
Q13_BA*	Secondary veg: Scrub-shrub and dead	0	0	0	0	0	1	0	0	0
Q13_BB*	Secondary veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BC*	Secondary veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BD*	Secondary veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	3	0	0	0
Q13_BE*	Secondary veg: Scrub-shrub and broad-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_CA*	Secondary veg: Aquatic bed and algal	2	3	1	3	3	0	0	0	6
Q13_CB*	Secondary veg: Aquatic bed and floating vascular	2	3	1	3	3	0	0	0	10
Q13_CC*	Secondary veg: Aquatic bed and rooted vascular	2	3	1	3	3	0	0	0	16
Q13_DB*	Secondary veg: Emergent and non-persistent	1	1	1	1	3	1	0	0	16
Q14_1	AA on 25 square foot island?	0	0	9	3	9	3	0	0	7
Q14_2	AA on 2 acre island?	0	0	0	0	0	0	0	0	13
Q15_1_A	Vegetation<-->Water = solid form	2	1	1	1	1	3	0	0	7
Q15_1_B	Vegetation<-->Water = intermediate	4	3	3	3	3	3	0	0	20
Q15_1_C	Vegetation<-->Water = checkerboard	4	9	9	9	9	1	0	0	47
Q15_2	Channel flow spreading?	18	9	1	9	9	0	0	0	39
Q16_A	Vegetation class = solid	0	0	1	1	1	1	0	0	0
Q16_B	Vegetation class = intermediate	0	0	1	1	3	3	0	0	0
Q16_C	Vegetation class = mosaic	0	0	1	1	3	9	0	0	0
Q17	Plant form richness	0	0	0	1	3	9	0	0	0
Q18	Upland<-->Wetland edge irregular?	1	3	3	3	3	3	0	0	6
Q19_1_A	Wind shelter?	1	0	9	9	9	0	0	0	13
Q19_1_B	Wind shelter + fetch?	0	0	0	0	0	0	0	0	0
Q19_2	Wave protection?	3	1	3	3	3	0	0	0	9
Q19_3	Upland habitat wind shelter?	0	0	0	0	1	1	0	0	0
Q20_1	Zone B shaded?	0	3	0	0	1	0	0	0	0
Q20_2	Balance sun<-->shade?	0	0	0	0	0	0	0	0	0
Q21_A	Subwatershed dominant land cover: forest and scrub?	0	0	0	0	0	9	0	0	0
Q21_E	Subwatershed dominant land cover: urban lawn/fill?	0	0	0	0	1	0	0	0	0
Q22_1_1	AA contains a Channel?	0	3	1	3	3	0	0	0	10
Q22_1_2	AA contains a Sinuous channel?	2	3	0	0	3	0	0	0	0
Q23	Is the AA Channelized?	0	x 0.8	0	0	0	0	0	0	0
Q24_2	Fine mineral soils?	4	0	0	0	0	0	0	0	0
Q24_4	Slow percolation in watershed?	1	0	0	0	0	0	0	0	0
Q25_1	Source of Inorganic sediment in buffer zone?	0	x 0.95	0	0	0	0	0	0	0
Q25_2_A	Primary source of sediment = sheetflow?	10	0	0	0	0	0	0	0	20
Q25_2_B*	Primary source of sediment = channel flow?	1	0	0	0	0	0	0	0	0
Q25_3	Wetland stabilizes erosion?	3	0	0	0	0	0	0	0	13
Q26_1	Nutrient source in buffer zone?	3	0	0	0	0	0	0	0	0
Q26_2	Primary source of nutrients = sheetflow?	9	0	0	0	0	0	0	0	0
Q26_3*	Primary source of nutrients = channel flow?	1	0	0	0	0	0	0	0	0
Q27_1	Toxic source in buffer zone?	3	0	x 0.8	x 0.8	x 0.8	x 0.9	0	0	x 0.965
Q27_3*	Primary source of toxics = channel flow?	1	x 0.5	0	0	0	0	0	0	x 0.888
Q28	Has AA been Directly altered?	x 0.8	0	0	0	0	0	0	0	x 0.822
Q29_1	Dense understory edge?	2	3	1	3	3	3	0	0	11
Q29_2	Buffer zone slopes < 5%?	0	0	0	0	0	0	0	0	0
Q30	Is AA subject to frequent Human disturbance?	x 0.95	0	0	0	0	0	0	0	x 0.933
Q31_1	Area of Zone A + Zone B > Zone C?	4	0	0	0	0	3	0	0	7

\* Special instructions for this indicator See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q31_2	Area of Zone B > 10% of AA?	2	0	0	0	0	0	0	0	9
Q31_3	Area of Zone B > Zone A?	1	3	3	3	3	0	0	0	8
Q31_4	Area of submergent in Zone B > open water of Zones B + C	6	9	3	9	9	0	0	0	10
Q31_5	Area of Zone A >= 10% of Zone B and C?	0	0	0	0	1	3	0	0	0
Q31_6_A	emergent in Zone B = 0% of Zones B and C?	0	3	3	3	3	0	0	0	0
Q31_6_B	emergent in Zone B = 1% - 30% of Zones B and C?	2	3	3	3	3	1	0	0	12
Q31_6_C	emergent in Zone B = 31% - 60% of Zones B and C?	6	3	3	3	9	3	0	0	24
Q31_6_D	emergent in Zone B = 61% - 99% of Zones B and C?	18	1	1	1	3	3	0	0	41
Q31_6_E	emergent in Zone B = 100% of Zones B and C or not prese	0	0	0	0	0	3	0	0	0
Q32_A	Spatial Dominant Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q32_B	Spatial Dominant Hydroperiod = intermit exposed nontidal?	0	9	1	3	3	0	0	0	0
Q32_C	Spatial Dominant Hydroperiod = semiperm flooded nontidal	0	3	1	3	3	0	0	0	0
Q32_D	Spatial Dominant Hydroperiod = seasonally flooded nontidal	0	1	1	1	3	3	0	0	0
Q32_E	Spatial Dominant Hydroperiod = saturated nontidal?	0	**	0	1	0	1	0	0	0
Q32_F	Spatial Dominant Hydroperiod = temp flooded nontidal?	0	**	0	0	1	0	0	0	0
Q32_G	Spatial Dominant Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	1	0	0	0
Q32_H	Spatial Dominant Hydroperiod = artificially flooded nontidal?	0	0	9	9	9	0	0	0	0
Q32_I	Spatial Dominant Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q32_J	Spatial Dominant Hydroperiod = irregularly exposed tidal?	0	3	3	3	3	0	0	0	33
Q32_K	Spatial Dominant Hydroperiod = irregularly flooded tidal?	0	1	1	1	3	3	0	0	9
Q33_A*	Permanent Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q33_B*	Permanent Hydroperiod = intermit exposed nontidal?	0	3	1	3	3	0	0	0	0
Q33_C*	Permanent Hydroperiod = semiperm flooded nontidal?	0	3	1	3	3	0	0	0	0
Q33_D*	Permanent Hydroperiod = seasonally flooded nontidal?	0	1	1	1	3	3	0	0	0
Q33_E*	Permanent Hydroperiod = saturated nontidal?	0	**	0	0	0	1	0	0	0
Q33_F*	Permanent Hydroperiod = temp flooded nontidal?	0	**	0	0	0	1	0	0	0
Q33_G*	Permanent Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	0	0	0	0
Q33_H*	Permanent Hydroperiod = artificially flooded nontidal?	0	9	9	9	9	0	0	0	0
Q33_I*	Permanent Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q33_J*	Permanent Hydroperiod = irregularly exposed tidal?	0	9	3	3	3	0	0	0	33
Q33_K*	Permanent Hydroperiod = irregularly flooded tidal?	0	0	1	1	3	3	0	0	9
Q34_1	Local dams?	3	0	0	0	0	3	0	0	15
Q34_2	Upstream impoundment?	0	0	0	0	0	0	0	0	0
Q34_3_1	Flooding due to downslope impoundment?	1	0	0	0	0	0	0	0	8
Q36_1_1	Average width of erect veg in Zones A and B < 20 feet?	0	0	0	0	3	0	0	0	0
Q36_1_2	Average width of erect veg in Zones A and B > 500 feet?	6	0	1	1	0	9	0	0	12
Q36_2_3	Avg width of erect veg (d<0.5 height) in Zone B > 500 feet?	0	0	0	0	0	9	0	0	0
Q37	Open water (d>2ft, w>6ft, l>1000ft)?	0	9	0	3	9	0	0	0	21
Q38_1	Perm flood or seas flood and other < 1 mi	0	9	1	3	3	0	0	0	0
Q38_2	(nontidal with erect veg) or 1 acre hardwood and other < 0.5	0	0	0	3	1	3	0	0	0
Q38_3	(estuarine/marine) or (fw palustrine/lacustrine) and other <	0	0	0	0	0	0	0	0	0
Q38_4	mudflat or tidal scrub-shrub and other adjacent	0	0	0	1	0	0	0	0	0
Q38_5	mudflat > 5 acre or emergent veg > 5 acre and other adja	0	3	9	9	9	0	0	0	0
Q38_6	agr/early succession or evergr forest>10 acres and other <	0	0	0	0	0	0	0	0	0
Q38_7	semiperm or seas flood or perm flood/intermit exposed and	0	0	3	3	9	0	0	0	0
Q39	Special habitat features?	0	0	1	3	3	9	0	0	0
Q40_2	Bottom water > 21 degrees C?	0	0	0	0	0	0	0	0	0
Q41_1	Peak flow velocity < 10 cm/s?	6	3	3	3	3	0	0	0	15
Q41_2	Peak flow velocity > 30 cm/s?	0	0	0	0	0	0	0	0	0
Q42_1_1	>1 acre or 10% of AA: 0<v<1 ft/sec	0	3	3	3	3	0	0	0	0
Q43_A	Dominant Water Depth < 1 inch	0	1	3	1	1	3	0	0	6

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q43_B	1 in < dominant water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q43_C	5 in < dwd < 8 inches	0	9	3	9	9	0	0	0	0
Q43_D	9 in < dominant water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q43_E	21 in < dominant water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q43_F	40 in < dominant water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q43_G	5 feet < dominant water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q43_H	6.5 feet < dominant water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q43_I	dominant water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q44_A*	Secondary Water Depth < 1 inch	0	0	3	1	1	3	0	0	6
Q44_B*	1 in < secondary water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q44_C*	5 in < secondary water depth < 8 inches	0	9	3	9	9	0	0	0	0
Q44_D*	9 in < secondary water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q44_E*	21 in < secondary water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q44_F*	40 in < secondary water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q44_G*	5 feet < secondary water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q44_H*	6.5 feet < secondary water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q44_I*	secondary water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q45_B	Substrate: Muck?	2	1	9	9	9	0	0	0	0
Q45_C	Substrate: peat?	6	1	9	9	9	0	0	0	0
Q45_D	Substrate: sand?	1	1	9	9	9	0	0	0	7
Q45_A	Substrate: mud?	2	1	9	9	9	1	0	0	8
Q45_E	Substrate: cobble-gravel?	0	0	0	0	0	0	0	0	13
Q45_F	Substrate: rubble?	0	0	0	0	0	0	0	0	13
Q46_B	Physical Habitat Interspersion = intermediate	0	3	0	1	3	0	0	0	0
Q46_C	Physical Habitat Interspersion = mosaic	1	9	0	3	9	0	0	0	14
Q48_A	Salinity < 0.5 ppt	1	0	0	0	1	1	0	0	0
Q49_1_1	20%-80% Pools?	0	3	0	9	9	0	0	0	0
Q49_1_2	Riffles?	0	0	0	0	0	0	0	0	0
Q49_2	Fish cover?	0	9	1	3	3	0	0	0	18
Q49_3	Carp prevalent in AA ?	0	0	0	3	0	0	0	0	0
Q50	Plants: waterfowl value?	0	3	3	1	9	1	0	0	0
Q51_2	Plant productivity > 1500 g/sq.m/yr	9	0	0	0	0	0	0	0	19
Q52_1	Freshwater Invertebrate Density > 500 sq.ft.	0	9	9	3	9	3	0	0	0
Q53_1	Tidal flat Invertebrate Density = "H"	0	3	9	9	9	1	0	0	0
Q55_1	Suspended Solids < 25 mg/l	0	3	0	1	0	0	0	0	0
Q55_3	Suspended Solids > 1200 mg/l	1	0	0	0	0	0	0	0	0
Q55_4	Suspended Solids > 4000 mg/l	3	0	0	0	0	0	0	0	0
Q61	DO limiting to fish?	0	x 0.7	0	0	0	0	0	0	x 0.934
Q63_1	Floodpeaks: inlet > outlet ?	0	0	0	0	0	0	0	0	0
Q63_2	Surface water inflows > outflows ?	1	0	0	0	0	0	0	0	0
Q64	Total Suspended Solids at inlet > outlet?	1	0	0	0	0	0	0	0	0
Q65_3	Warm Freshwater Fish present?	0	9	0	9	3	1	0	0	0
Q66_1_1	Group 1 Waterfowl Breeding present?	0	0	0	0	9	0	0	0	0
Q66_2_1	Waterfowl Group 1 Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_3	Black Duck Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_5	Mergansers Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_7	Bufflehead/Goldeneye Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_10	Geese Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q98	Presence of Eleocharis parvula	0	3	9	9	3	0	0	0	0
Q99	Proximity to public transportation	0	0	0	0	0	0	0	x 2	0

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise multiply by 0

**Table F-1**  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
	Normalize by Dividing by (then multiply by 100)	130	101.65	84.8	112	208	97.2	3	38	394.82
									2.0175	

\* Special instructions for this indicator See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

# ASSESSMENT AREA 2E FUTURE 134-ACRE

Table F-1.  
Attribute Indicator Ranks

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
I1	Threatened/Endangered Species?	0	0	0	0	0	0	0	9	0
I3	State Listed Cultural Resource?	0	0	0	0	0	0	0	9	0
I4	Unusual or rare local type?	0	0	0	0	0	0	0	3	0
I6	Substantial previous \$ expenditure?	0	0	0	0	0	0	0	1	0
I8	Features sensitive to flooding?	0	0	0	0	0	0	1	0	0
I9	Downslope sensitive features in floodplain?	0	0	0	0	0	0	1	0	0
I18	Features in erosion prone areas?	0	0	0	0	0	0	1	0	0
I23	Education opportunity?	0	0	0	0	0	0	0	1	0
I24	Research resource?	0	0	0	0	0	0	0	1	0
I26	Recreation in deficient area?	0	0	0	0	0	0	0	3	0
I27	Recreation access point?	0	0	0	0	0	0	0	3	0
Q1_3	Freeze-over > one month?	0	0	0	0	0	0	0	0	0
Q2_1_1	Area < 5 acres?	0	0	0	0	0	0	0	0	x 0.965
Q2_1_1A	Area < 1 acre	0	0	1	1	1	0	0	0	0
Q2_1_2	Area > 40 acres?	4	0	0	0	0	0	0	0	21
Q2_1_2A	Area > 1 acre	0	1	3	3	3	9	0	0	0
Q2_1_3	Area > 200 acres?	12	1	3	3	3	9	0	0	63
Q2_2_1	Forested area < 5 acres ?	0	0	0	0	0	0	0	0	0
Q2_2_1A	Forested area < 1 acre	0	0	0	0	0	1	0	0	0
Q2_2_1B	Forested area > 1 ac, < 40 acres	0	0	0	0	0	3	0	0	0
Q2_2_2	Forested area > 40 acres ?	10	0	0	0	0	3	0	0	21
Q5_1_2	AA > 20% of watershed?	6	0	0	0	0	0	0	0	11
Q5_2	Upslope wet depressions > 5% of watershed?	0	0	0	0	0	0	0	0	0
Q5_3	AA outside annual floodplain ?	0	x 0.8	0	0	0	0	0	0	0
Q7	v < 10 cm/s?	6	0	0	0	0	0	0	0	0
Q8_1	Permanent inlet?	2	9	1	1	3	0	0	0	14
Q8_2	Intermittent inlet?	2	3	1	1	1	0	0	0	8
Q8_3	Permanent outlet?	0	9	1	1	1	0	0	0	30
Q8_4	Intermittent outlet?	2	3	0	0	0	0	0	0	6
Q9_1	Outlet < one third average width?	2	0	0	0	0	0	0	0	0
Q9_2	Sheet flooding?	18	0	0	0	0	0	0	0	28
Q10_B	Palustrine?	2	0	0	0	0	9	0	0	10
Q10_D	Riverine tidal?	2	9	9	9	9	0	0	0	8
Q10_E	Estuarine?	2	3	3	3	3	3	0	0	18
Q11	Fringe or island wetland?	2	9	1	1	1	0	0	0	10
Q12_AB	Dominant veg: forested and needle-leaved evergreen	1	0	0	0	0	9	0	0	0
Q12_AC	Dominant veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_AD	Dominant veg: forested and needle-leaved deciduous	1	0	0	0	0	0	0	0	0
Q12_AE	Dominant veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0
Q12_BB	Dominant veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_BC	Dominant veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_BD	Dominant veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	0	0	0	0
Q12_BE	Dominant veg: Scrub-shrub and broad-leaved deciduous	1	0	0	1	1	9	0	0	0
Q12_CA	Dominant veg: Aquatic bed and algal	2	9	1	3	9	0	0	0	5
Q12_CB	Dominant veg: Aquatic bed and floating vascular	2	9	1	9	9	0	0	0	10
Q12_CC	Dominant veg: Aquatic bed and rooted vascular	2	9	1	9	9	0	0	0	16
Q12_DA	Dominant veg: Emergent and persistent	6	1	1	1	3	3	0	0	16
Q12_DB	Dominant veg: Emergent and non-persistent	1	3	3	9	9	1	0	0	16
Q13_AA*	Secondary veg: forested and dead	0	0	0	1	0	3	0	0	0
Q13_AB*	Secondary veg: forested and needle-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_AC*	Secondary veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0	0

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q13_AD*	Secondary veg: forested and needle-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_AE*	Secondary veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0
Q13_BA*	Secondary veg: Scrub-shrub and dead	0	0	0	0	0	1	0	0	0
Q13_BB*	Secondary veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BC*	Secondary veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BD*	Secondary veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	3	0	0	0
Q13_BE*	Secondary veg: Scrub-shrub and broad-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_CA*	Secondary veg: Aquatic bed and algal	2	3	1	3	3	0	0	0	6
Q13_CB*	Secondary veg: Aquatic bed and floating vascular	2	3	1	3	3	0	0	0	10
Q13_CC*	Secondary veg: Aquatic bed and rooted vascular	2	3	1	3	3	0	0	0	16
Q13_DA*	Secondary veg: Emergent and persistent	6	3	3	3	3	3	0	0	16
Q13_DB*	Secondary veg: Emergent and non-persistent	1	1	1	1	3	1	0	0	16
Q14_1	AA on 25 square foot island?	0	0	9	3	9	3	0	0	7
Q14_2	AA on 2 acre island?	0	0	0	0	0	0	0	0	13
Q15_1_A	Vegetation<-->Water = solid form	2	1	1	1	1	3	0	0	7
Q15_1_B	Vegetation<-->Water = intermediate	4	3	3	3	3	3	0	0	20
Q15_1_C	Vegetation<-->Water = checkerboard	4	9	9	9	9	1	0	0	47
Q15_2	Channel flow spreading?	18	9	1	9	9	0	0	0	39
Q16_A	Vegetation class = solid	0	0	1	1	1	1	0	0	0
Q16_B	Vegetation class = intermediate	0	0	1	1	3	3	0	0	0
Q16_C	Vegetation class = mosaic	0	0	1	1	3	9	0	0	0
Q17	Plant form richness	0	0	0	1	3	9	0	0	0
Q18	Upland<-->Wetland edge irregular?	1	3	3	3	3	3	0	0	6
Q19_1_A	Wind shelter?	1	0	9	9	9	0	0	0	13
Q19_1_B	Wind shelter + fetch?	0	0	0	0	0	0	0	0	0
Q19_2	Wave protection?	3	1	3	3	3	0	0	0	9
Q19_3	Upland habitat wind shelter?	0	0	0	0	1	1	0	0	0
Q20_1	Zone B shaded?	0	3	0	0	1	0	0	0	0
Q20_2	Balance sun<-->shade?	0	0	0	0	0	0	0	0	0
Q21_A	Subwatershed dominant land cover: forest and scrub?	0	0	0	0	0	9	0	0	0
Q21_E	Subwatershed dominant land cover: urban lawn/fill?	0	0	0	0	1	0	0	0	0
Q22_1_1	AA contains a Channel?	0	3	1	3	3	0	0	0	10
Q22_1_2	AA contains a Sinuous channel?	2	3	0	0	3	0	0	0	0
Q23	Is the AA Channelized?	0 x 0.8	0	0	0	0	0	0	0	0
Q24_2	Fine mineral soils?	4	0	0	0	0	0	0	0	0
Q24_4	Slow percolation in watershed?	1	0	0	0	0	0	0	0	0
Q25_1	Source of Inorganic sediment in buffer zone?	0 x 0.95	0	0	0	0	0	0	0	0
Q25_2_A	Primary source of sediment = sheetflow?	10	0	0	0	0	0	0	0	20
Q25_2_B*	Primary source of sediment = channel flow?	1	0	0	0	0	0	0	0	0
Q25_3	Wetland stabilizes erosion?	3	0	0	0	0	0	0	0	13
Q26_1	Nutrient source in buffer zone?	3	0	0	0	0	0	0	0	C
Q26_2	Primary source of nutrients = sheetflow?	9	0	0	0	0	0	0	0	0
Q26_3*	Primary source of nutrients = channel flow?	1	0	0	0	0	0	0	0	0
Q27_1	Toxic source in buffer zone?	3	0 x 0.8	x 0.8	x 0.8	x 0.9	0	C	x 0.965	
Q27_2	Primary source of toxics = sheetflow?	9 x 0.7	0	0	0	0	0	0	x 0.934	
Q27_3*	Primary source of toxics = channel flow?	1 x 0.5	0	0	0	0	0	0	x 0.888	
Q28	Has AA been Directly altered?	x 0.8	0	0	0	0	0	0	x 0.822	
Q29_1	Dense understory edge?	2	3	1	3	3	3	0	0	11
Q29_2	Buffer zone slopes < 5%?	0	0	0	0	0	0	0	0	0
Q30	Is AA subject to frequent Human disturbance?	x 0.95	0	0	0	0	0	0	x 0.933	
Q31_1	Area of Zone A + Zone B > Zone C?	4	0	0	0	0	3	0	0	7

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q31_2	Area of Zone B > 10% of AA?	2	0	0	0	0	0	0	0	9
Q31_3	Area of Zone B > Zone A?	1	3	3	3	3	0	0	0	8
Q31_4	Area of submergent in Zone B > open water of Zones B + C	6	9	3	9	9	0	0	0	10
Q31_5	Area of Zone A >= 10% of Zone B and C?	0	0	0	0	1	3	0	0	0
Q31_6_A	emergent in Zone B = 0% of Zones B and C?	0	3	3	3	3	0	0	0	0
Q31_6_B	emergent in Zone B = 1% - 30% of Zones B and C?	2	3	3	3	3	1	0	0	12
Q31_6_C	emergent in Zone B = 31% - 60% of Zones B and C?	6	3	3	3	9	3	0	0	24
Q31_6_D	emergent in Zone B = 61% - 99% of Zones B and C?	18	1	1	1	3	3	0	0	41
Q31_6_E	emergent in Zone B = 100% of Zones B and C or not prese	0	0	0	0	0	3	0	0	0
Q32_A	Spatial Dominant Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q32_B	Spatial Dominant Hydroperiod = intermit exposed nontidal?	0	9	1	3	3	0	0	0	0
Q32_C	Spatial Dominant Hydroperiod = semiperm flooded nontidal	0	3	1	3	3	0	0	0	0
Q32_D	Spatial Dominant Hydroperiod = seasonally flooded nontidal	0	1	1	1	3	3	0	0	0
Q32_E	Spatial Dominant Hydroperiod = saturated nontidal?	0	**	0	1	0	1	0	0	0
Q32_F	Spatial Dominant Hydroperiod = temp flooded nontidal?	0	**	0	0	1	0	0	0	0
Q32_G	Spatial Dominant Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	1	0	0	0
Q32_H	Spatial Dominant Hydroperiod = artificially flooded nontidal?	0	0	9	9	9	0	0	0	0
Q32_I	Spatial Dominant Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q32_J	Spatial Dominant Hydroperiod = irregularly exposed tidal?	0	3	3	3	3	0	0	0	33
Q32_K	Spatial Dominant Hydroperiod = irregularly flooded tidal?	0	1	1	1	3	3	0	0	9
Q33_A*	Permanent Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q33_B*	Permanent Hydroperiod = intermit exposed nontidal?	0	3	1	3	3	0	0	0	0
Q33_C*	Permanent Hydroperiod = semiperm flooded nontidal?	0	3	1	3	3	0	0	0	0
Q33_D*	Permanent Hydroperiod = seasonally flooded nontidal?	0	1	1	1	3	3	0	0	0
Q33_E*	Permanent Hydroperiod = saturated nontidal?	0	**	0	0	0	1	0	0	0
Q33_F*	Permanent Hydroperiod = temp flooded nontidal?	0	**	0	0	0	1	0	0	0
Q33_G*	Permanent Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	0	0	0	0
Q33_H*	Permanent Hydroperiod = artificially flooded nontidal?	0	9	9	9	9	0	0	0	0
Q33_I*	Permanent Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q33_J*	Permanent Hydroperiod = irregularly exposed tidal?	0	9	3	3	3	0	0	0	33
Q33_K*	Permanent Hydroperiod = irregularly flooded tidal?	0	0	1	1	3	3	0	0	9
Q34_1	Local dams?	3	0	0	0	0	3	0	0	15
Q34_2	Upstream impoundment?	0	0	0	0	0	0	0	0	0
Q34_3_1	Flooding due to downslope impoundment?	1	0	0	0	0	0	0	0	8
Q36_1_1	Average width of erect veg in Zones A and B < 20 feet?	0	0	0	0	3	0	0	0	0
Q36_1_2	Average width of erect veg in Zones A and B > 500 feet?	6	0	1	1	0	9	0	0	12
Q36_2_3	Avg width of erect veg (d<0.5 height) in Zone B > 500 feet?	0	0	0	0	0	9	0	0	0
Q37	Open water (d>2ft, w>6ft, l>1000ft)?	0	9	0	3	9	0	0	0	21
Q38_1	Perm flood or seas flood and other < 1 mi	0	9	1	3	3	0	0	0	0
Q38_2	(nontidal with erect veg) or 1 acre hardwood and other < 0.5	0	0	0	3	1	3	0	0	0
Q38_3	(estuarine/marine) or (fw palustrine/lacustrine) and other <	0	0	0	0	0	0	0	0	0
Q38_4	mudflat or tidal scrub-shrub and other adjacent	0	0	0	1	0	0	0	0	0
Q38_5	mudflat > 5 acre or emergent veg > 5 acre and other adja	0	3	9	9	9	0	0	0	0
Q38_6	agr/early succession or evergr forest>10 acres and other <	0	0	0	0	0	0	0	0	0
Q38_7	semiperm or seas flood or perm flood/intermit exposed and	0	0	3	3	9	0	0	0	0
Q39	Special habitat features?	0	0	1	3	3	9	0	0	0
Q40_2	Bottom water > 21 degrees C?	0	0	0	0	0	0	0	0	0
Q41_1	Peak flow velocity < 10 cm/s?	6	3	3	3	3	0	0	0	15
Q41_2	Peak flow velocity > 30 cm/s?	0	0	0	0	0	0	0	0	0
Q42_1_1	>1 acre or 10% of AA: 0<v<1 ft/sec	0	3	3	3	3	0	0	0	0
Q43_A	Dominant Water Depth < 1 inch	0	1	3	1	1	3	0	0	6

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q43_B	1 in < dominant water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q43_C	5 in < dwd < 8 inches	0	9	3	9	9	0	0	0	0
Q43_D	9 in < dominant water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q43_E	21 in < dominant water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q43_F	40 in < dominant water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q43_G	5 feet < dominant water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q43_H	6.5 feet < dominant water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q43_I	dominant water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q44_A*	Secondary Water Depth < 1 inch	0	0	3	1	1	3	0	0	6
Q44_B*	1 in < secondary water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q44_C*	5 in < secondary water depth < 8 inches	0	9	3	9	9	0	0	0	0
Q44_D*	9 in < secondary water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q44_E*	21 in < secondary water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q44_F*	40 in < secondary water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q44_G*	5 feet < secondary water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q44_H*	6.5 feet < secondary water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q44_I*	secondary water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q45_B	Substrate: Muck?	2	1	9	9	9	0	0	0	0
Q45_C	Substrate: peat?	6	1	9	9	9	0	0	0	0
Q45_D	Substrate: sand?	1	1	9	9	9	0	0	0	7
Q45_A	Substrate: mud?	2	1	9	9	9	1	0	0	8
Q45_E	Substrate: cobble-gravel?	0	0	0	0	0	0	0	0	13
Q45_F	Substrate: rubble?	0	0	0	0	0	0	0	0	13
Q46_B	Physical Habitat Interspersion = intermediate	0	3	0	1	3	0	0	0	0
Q46_C	Physical Habitat Interspersion = mosaic	1	9	0	3	9	0	0	0	14
Q49_1_1	20%-80% Pools?	0	3	0	9	9	0	0	0	0
Q49_1_2	Riffles?	0	0	0	0	0	0	0	0	0
Q49_2	Fish cover?	0	9	1	3	3	0	0	0	18
Q49_3	Carp prevalent in AA ?	0	0	0	3	0	0	0	0	0
Q50	Plants: waterfowl value?	0	3	3	1	9	1	0	0	0
Q51_2	Plant productivity > 1500 g/sq.m/yr	9	0	0	0	0	0	0	0	19
Q53_1	Tidal flat Invertebrate Density = "H"	0	3	9	9	9	1	0	0	0
Q55_1	Suspended Solids < 25 mg/l	0	3	0	1	0	0	0	0	0
Q55_3	Suspended Solids > 1200 mg/l	1	0	0	0	0	0	0	0	0
Q55_4	Suspended Solids > 4000 mg/l	3	0	0	0	0	0	0	0	0
Q61	DO limiting to fish?	0	x 0.7	0	0	0	0	0	0	x 0.934
Q63_1	Floodpeaks: inlet > outlet ?	0	0	0	0	0	0	0	0	0
Q63_2	Surface water inflows > outflows ?	1	0	0	0	0	0	0	0	0
Q64	Total Suspended Solids at inlet > outlet?	1	0	0	0	0	0	0	0	0
Q65_3	Warm Freshwater Fish present?	0	9	0	9	3	1	0	0	0
Q66_1_1	Group 1 Waterfowl Breeding present?	0	0	0	0	9	0	0	0	0
Q66_2_1	Waterfowl Group 1 Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_3	Black Duck Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_5	Mergansers Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_7	Bufflehead/Goldeneye Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_10	Geese Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q98	Presence of Eleocharis parvula	0	3	9	9	3	0	0	0	0
Q99	Proximity to public transportation	0	0	0	0	0	0	0	x 2	0

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

**Table F-1**  
**(continued)**

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
	Normalize by Dividing by (then multiply by 100)	130	101.65	84.8	112	208	97.2	3	38	394.82
									2.0175	

\* Special instructions for this indicator: See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

# ASSESSMENT AREA 2F

FUTURE 134-ACRE  
(ALTERNATIVE D)

(SAME AS 2E)

Table F-1  
Attribute Indicator Ranks

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
I1	Threatened/Endangered Species?	0	0	0	0	0	0	0	9	0
I3	State Listed Cultural Resource?	0	0	0	0	0	0	0	9	0
I4	Unusual or rare local type?	0	0	0	0	0	0	0	3	0
I6	Substantial previous \$ expenditure?	0	0	0	0	0	0	0	1	0
I8	Features sensitive to flooding?	0	0	0	0	0	0	1	0	0
I9	Downslope sensitive features in floodplain?	0	0	0	0	0	0	1	0	0
I18	Features in erosion prone areas?	0	0	0	0	0	0	1	0	0
I23	Education opportunity?	0	0	0	0	0	0	0	1	0
I24	Research resource?	0	0	0	0	0	0	0	1	0
I26	Recreation in deficient area?	0	0	0	0	0	0	0	3	0
I27	Recreation access point?	0	0	0	0	0	0	0	3	0
Q1_3	Freeze-over > one month?	0	0	0	0	0	0	0	0	0
Q2_1_1	Area < 5 acres?	0	0	0	0	0	0	0	0	x 0.965
Q2_1_1A	Area < 1 acre	0	0	1	1	1	0	0	0	0
Q2_1_2	Area > 40 acres?	4	0	0	0	0	0	0	0	21
Q2_1_2A	Area > 1 acre	0	1	3	3	3	9	0	0	0
Q2_1_3	Area > 200 acres?	12	1	3	3	3	9	0	0	63
Q2_2_1	Forested area < 5 acres?	0	0	0	0	0	0	0	0	0
Q2_2_1A	Forested area < 1 acre	0	0	0	0	0	1	0	0	0
Q2_2_1B	Forested area > 1 ac, < 40 acres	0	0	0	0	0	3	0	0	0
Q2_2_2	Forested area > 40 acres?	10	0	0	0	0	3	0	0	21
Q5_1_2	AA > 20% of watershed?	6	0	0	0	0	0	0	0	11
Q5_2	Upslope wet depressions > 5% of watershed?	0	0	0	0	0	0	0	0	0
Q5_3	AA outside annual floodplain?	0	x 0.8	0	0	0	0	0	0	0
Q7	v < 10 cm/s?	6	0	0	0	0	0	0	0	0
Q8_1	Permanent inlet?	2	9	1	1	3	0	0	0	14
Q8_2	Intermittent inlet?	2	3	1	1	1	0	0	0	8
Q8_3	Permanent outlet?	0	9	1	1	1	0	0	0	30
Q8_4	Intermittent outlet?	2	3	0	0	0	0	0	0	6
Q9_1	Outlet < one third average width?	2	0	0	0	0	0	0	0	0
Q9_2	Sheet flooding?	18	0	0	0	0	0	0	0	28
Q10_B	Palustrine?	2	0	0	0	0	9	0	0	10
Q10_D	Riverine tidal?	2	9	9	9	9	0	0	0	8
Q10_E	Estuarine?	2	3	3	3	3	3	0	0	18
Q11	Fringe or island wetland?	2	9	1	1	1	0	0	0	10
Q12_AB	Dominant veg: forested and needle-leaved evergreen	1	0	0	0	0	9	0	0	0
Q12_AC	Dominant veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_AD	Dominant veg: forested and needle-leaved deciduous	1	0	0	0	0	0	0	0	0
Q12_AE	Dominant veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0
Q12_BB	Dominant veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_BC	Dominant veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_BD	Dominant veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	0	0	0	0
Q12_BE	Dominant veg: Scrub-shrub and broad-leaved deciduous	1	0	0	1	1	9	0	0	0
Q12_CA	Dominant veg: Aquatic bed and algal	2	9	1	3	9	0	0	0	6
Q12_CB	Dominant veg: Aquatic bed and floating vascular	2	9	1	9	9	0	0	0	10
Q12_CC	Dominant veg: Aquatic bed and rooted vascular	2	9	1	9	9	0	0	0	16
Q12_DA	Dominant veg: Emergent and persistent	6	1	1	1	3	3	0	0	16
Q12_DB	Dominant veg: Emergent and non-persistent	1	3	3	9	9	1	0	0	16
Q13_AA*	Secondary veg: forested and dead	0	0	0	1	0	3	0	0	0
Q13_AB*	Secondary veg: forested and needle-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_AC*	Secondary veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0	0

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q13_AD*	Secondary veg: forested and needle-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_AE*	Secondary veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0
Q13_BA*	Secondary veg: Scrub-shrub and dead	0	0	0	0	0	1	0	0	0
Q13_BB*	Secondary veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BC*	Secondary veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BD*	Secondary veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	3	0	0	0
Q13_BE*	Secondary veg: Scrub-shrub and broad-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_CA*	Secondary veg: Aquatic bed and algal	2	3	1	3	3	0	0	0	6
Q13_CB*	Secondary veg: Aquatic bed and floating vascular	2	3	1	3	3	0	0	0	10
Q13_CC*	Secondary veg: Aquatic bed and rooted vascular	2	3	1	3	3	0	0	0	16
Q13_DA*	Secondary veg: Emergent and persistent	6	3	3	3	3	3	0	0	16
Q13_DB*	Secondary veg: Emergent and non-persistent	1	1	1	1	3	1	0	0	16
Q14_1	AA on 25 square foot island?	0	0	9	3	9	3	0	0	7
Q14_2	AA on 2 acre island?	0	0	0	0	0	0	0	0	13
Q15_1_A	Vegetation<-->Water = solid form	2	1	1	1	1	3	0	0	7
Q15_1_B	Vegetation<-->Water = intermediate	4	3	3	3	3	3	0	0	20
Q15_1_C	Vegetation<-->Water = checkerboard	4	9	9	9	9	1	0	0	47
Q15_2	Channel flow spreading?	18	9	1	9	9	0	0	0	39
Q16_A	Vegetation class = solid	0	0	1	1	1	1	0	0	0
Q16_B	Vegetation class = intermediate	0	0	1	1	3	3	0	0	0
Q16_C	Vegetation class = mosaic	0	0	1	1	3	9	0	0	0
Q17	Plant form richness	0	0	0	1	3	9	0	0	0
Q18	Upland<-->Wetland edge irregular?	1	3	3	3	3	3	0	0	6
Q19_1_A	Wind shelter?	1	0	9	9	9	0	0	0	13
Q19_1_B	Wind shelter + fetch?	0	0	0	0	0	0	0	0	0
Q19_2	Wave protection?	3	1	3	3	3	0	0	0	9
Q19_3	Upland habitat wind shelter?	0	0	0	0	1	1	0	0	0
Q20_1	Zone B shaded?	0	3	0	0	1	0	0	0	0
Q20_2	Balance sun<-->shade?	0	0	0	0	0	0	0	0	0
Q21_A	Subwatershed dominant land cover: forest and scrub?	0	0	0	0	0	9	0	0	0
Q21_E	Subwatershed dominant land cover: urban lawn/fill?	0	0	0	0	1	0	0	0	0
Q22_1_1	AA contains a Channel?	0	3	1	3	3	0	0	0	10
Q22_1_2	AA contains a Sinuous channel?	2	3	0	0	3	0	0	0	0
Q23	Is the AA Channelized?	0 x 0.8		0	0	0	0	0	0	0
Q24_2	Fine mineral soils?	4	0	0	0	0	0	0	0	0
Q24_4	Slow percolation in watershed?	1	0	0	0	0	0	0	0	0
Q25_1	Source of Inorganic sediment in buffer zone?	0 x 0.95		0	0	0	0	0	0	0
Q25_2_A	Primary source of sediment = sheetflow?	10	0	0	0	0	0	0	0	20
Q25_2_B*	Primary source of sediment = channel flow?	1	0	0	0	0	0	0	0	0
Q25_3	Wetland stabilizes erosion?	3	0	0	0	0	0	0	0	13
Q26_1	Nutrient source in buffer zone?	3	0	0	0	0	0	0	0	0
Q26_2	Primary source of nutrients = sheetflow?	9	0	0	0	0	0	0	0	0
Q26_3*	Primary source of nutrients = channel flow?	1	0	0	0	0	0	0	0	0
Q27_1	Toxic source in buffer zone?	3	0	x 0.8	x 0.8	x 0.8	x 0.9	0	0	x 0.965
Q27_2	Primary source of toxics = sheetflow?	9	x 0.7	0	0	0	0	0	0	x 0.934
Q27_3*	Primary source of toxics = channel flow?	1	x 0.5	0	0	0	0	0	0	x 0.888
Q28	Has AA been Directly altered?	x 0.8	0	0	0	0	0	0	0	x 0.822
Q29_1	Dense understory edge?	2	3	1	3	3	3	0	0	11
Q29_2	Buffer zone slopes < 5%?	0	0	0	0	0	0	0	0	0
Q30	Is AA subject to frequent Human disturbance?	x 0.95	0	0	0	0	0	0	0	x 0.933
Q31_1	Area of Zone A + Zone B > Zone C?	4	0	0	0	0	3	0	0	7

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA is > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q31_2	Area of Zone B > 10% of AA?	2	0	0	0	0	0	0	0	9
Q31_3	Area of Zone B > Zone A?	1	3	3	3	3	0	0	0	8
Q31_4	Area of submergent in Zone B > open water of Zones B + C	6	9	3	9	9	0	0	0	10
Q31_5	Area of Zone A >= 10% of Zone B and C?	0	0	0	0	1	3	0	0	0
Q31_6_A	emergent in Zone B = 0% of Zones B and C?	0	3	3	3	3	0	0	0	0
Q31_6_B	emergent in Zone B = 1% - 30% of Zones B and C?	2	3	3	3	3	1	0	0	12
Q31_6_C	emergent in Zone B = 31% - 60% of Zones B and C?	6	3	3	3	9	3	0	0	24
Q31_6_D	emergent in Zone B = 61% - 99% of Zones B and C?	18	1	1	1	3	3	0	0	41
Q31_6_E	emergent in Zone B = 100% of Zones B and C or not prese	0	0	0	0	0	3	0	0	0
Q32_A	Spatial Dominant Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q32_B	Spatial Dominant Hydroperiod = intermit exposed nontidal?	0	9	1	3	3	0	0	0	0
Q32_C	Spatial Dominant Hydroperiod = semiperm flooded nontidal	0	3	1	3	3	0	0	0	0
Q32_D	Spatial Dominant Hydroperiod = seasonally flooded nontidal	0	1	1	1	3	3	0	0	0
Q32_E	Spatial Dominant Hydroperiod = saturated nontidal?	0	**	0	1	0	1	0	0	0
Q32_F	Spatial Dominant Hydroperiod = temp flooded nontidal?	0	**	0	0	1	0	0	0	0
Q32_G	Spatial Dominant Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	1	0	0	0
Q32_H	Spatial Dominant Hydroperiod = artificially flooded nontidal?	0	0	9	9	9	0	0	0	0
Q32_I	Spatial Dominant Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q32_J	Spatial Dominant Hydroperiod = irregularly exposed tidal?	0	3	3	3	3	0	0	0	33
Q32_K	Spatial Dominant Hydroperiod = irregularly flooded tidal?	0	1	1	1	3	3	0	0	9
Q33_A*	Permanent Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q33_B*	Permanent Hydroperiod = intermit exposed nontidal?	0	3	1	3	3	0	0	0	0
Q33_C*	Permanent Hydroperiod = semiperm flooded nontidal?	0	3	1	3	3	0	0	0	0
Q33_D*	Permanent Hydroperiod = seasonally flooded nontidal?	0	1	1	1	3	3	0	0	0
Q33_E*	Permanent Hydroperiod = saturated nontidal?	0	**	0	0	0	1	0	0	0
Q33_F*	Permanent Hydroperiod = temp flooded nontidal?	0	**	0	0	0	1	0	0	0
Q33_G*	Permanent Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	0	0	0	0
Q33_H*	Permanent Hydroperiod = artificially flooded nontidal?	0	9	9	9	9	0	0	0	0
Q33_I*	Permanent Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q33_J*	Permanent Hydroperiod = irregularly exposed tidal?	0	9	3	3	3	0	0	0	33
Q33_K*	Permanent Hydroperiod = irregularly flooded tidal?	0	0	1	1	3	3	0	0	9
Q34_1	Local dams?	3	0	0	0	0	3	0	0	15
Q34_2	Upstream impoundment?	0	0	0	0	0	0	0	0	0
Q34_3_1	Flooding due to downslope impoundment?	1	0	0	0	0	0	0	0	8
Q36_1_1	Average width of erect veg in Zones A and B < 20 feet?	0	0	0	0	3	0	0	0	0
Q36_1_2	Average width of erect veg in Zones A and B > 500 feet?	6	0	1	1	0	9	0	0	12
Q36_2_3	Avg width of erect veg (<0.5 height) in Zone B > 500 feet?	0	0	0	0	0	9	0	0	0
Q37	Open water (d>2ft, w>6ft, l>1000ft)?	0	9	0	3	9	0	0	0	21
Q38_1	Perm flood or seas flood and other < 1 mi	0	9	1	3	3	0	0	0	0
Q38_2	(nontidal with erect veg) or 1 acre hardwood and other < 0.5	0	0	0	3	1	3	0	0	0
Q38_3	(estuarine/marine) or (fw palustrine/lacustrine) and other <	0	0	0	0	0	0	0	0	0
Q38_4	mudflat or tidal scrub-shrub and other adjacent	0	0	0	1	0	0	0	0	0
Q38_5	mudflat > 5 acre or emergent veg > 5 acre and other adja	0	3	9	9	9	0	0	0	0
Q38_6	agr/early succession or evergr forest>10 acres and other <	0	0	0	0	0	0	0	0	0
Q38_7	semiperm or seas flood or perm flood/intermit exposed and	0	0	3	3	9	0	0	0	0
Q39	Special habitat features?	0	0	1	3	3	9	0	0	0
Q40_2	Bottom water > 21 degrees C?	0	0	0	0	0	0	0	0	0
Q41_1	Peak flow velocity < 10 cm/s?	6	3	3	3	3	0	0	0	15
Q41_2	Peak flow velocity > 30 cm/s?	0	0	0	0	0	0	0	0	0
Q42_1_1	>1 acre or 10% of AA: 0<v<1 ft/sec	0	3	3	3	3	0	0	0	0
Q43_A	Dominant Water Depth < 1 inch	0	1	3	1	1	3	0	0	6

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q43_B	1 in < dominant water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q43_C	5 in < dwd < 8 inches	0	9	3	9	9	0	0	0	0
Q43_D	9 in < dominant water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q43_E	21 in < dominant water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q43_F	40 in < dominant water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q43_G	5 feet < dominant water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q43_H	6.5 feet < dominant water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q43_I	dominant water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q44_A*	Secondary Water Depth < 1 inch	0	0	3	1	1	3	0	0	6
Q44_B*	1 in < secondary water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q44_C*	5 in < secondary water depth < 8 inches	0	9	3	9	9	0	0	0	0
Q44_D*	9 in < secondary water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q44_E*	21 in < secondary water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q44_F*	40 in < secondary water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q44_G*	5 feet < secondary water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q44_H*	6.5 feet < secondary water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q44_I*	secondary water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q45_B	Substrate: Muck?	2	1	9	9	9	0	0	0	0
Q45_C	Substrate: peat?	6	1	9	9	9	0	0	0	0
Q45_D	Substrate: sand?	1	1	9	9	9	0	0	0	7
Q45_A	Substrate: mud?	2	1	9	9	9	1	0	0	8
Q45_E	Substrate: cobble-gravel?	0	0	0	0	0	0	0	0	13
Q45_F	Substrate: rubble?	0	0	0	0	0	0	0	0	13
Q46_B	Physical Habitat Interspersion = intermediate	0	3	0	1	3	0	0	0	0
Q46_C	Physical Habitat Interspersion = mosaic	1	9	0	3	9	0	0	0	14
Q48_A	Salinity < 0.5 ppt	1	0	0	0	1	1	0	0	0
Q49_1_1	20%-80% Pools?	0	3	0	9	9	0	0	0	0
Q49_1_2	Riffles?	0	0	0	0	0	0	0	0	0
Q49_2	Fish cover?	0	9	1	3	3	0	0	0	18
Q49_3	Carp prevalent in AA ?	0	0	0	3	0	0	0	0	0
Q50	Plants: waterfowl value?	0	3	3	1	9	1	0	0	0
Q51_2	Plant productivity > 1500 g/sq.m/yr	9	0	0	0	0	0	0	0	19
Q52_1	Freshwater Invertebrate Density > 500 sq.ft.	0	9	9	3	9	3	0	0	0
Q53_1	Tidal flat Invertebrate Density = "H"	0	3	9	9	9	1	0	0	0
Q55_1	Suspended Solids < 25 mg/l	0	3	0	1	0	0	0	0	0
Q55_3	Suspended Solids > 1200 mg/l	1	0	0	0	0	0	0	0	0
Q55_4	Suspended Solids > 4000 mg/l	3	0	0	0	0	0	0	0	0
Q61	DO limiting to fish?	0	x 0.7	0	0	0	0	0	0	x 0.934
Q63_1	Floodpeaks: inlet > outlet ?	0	0	0	0	0	0	0	0	0
Q63_2	Surface water inflows > outflows ?	1	0	0	0	0	0	0	0	0
Q64	Total Suspended Solids at inlet > outlet?	1	0	0	0	0	0	0	0	0
Q65_3	Warm Freshwater Fish present?	0	9	0	9	3	1	0	0	0
Q66_1_1	Group 1 Waterfowl Breeding present?	0	0	0	0	9	0	0	0	0
Q66_2_1	Waterfowl Group 1 Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_3	Black Duck Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_5	Mergansers Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_7	Bufflehead/Goldeneye Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_10	Geese Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q98	Presence of Eleocharis parvula	0	3	9	9	3	0	0	0	0
Q99	Proximity to public transportation	0	0	0	0	0	0	0	x 2	0

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
	Normalize by Dividing by (then multiply by 100)	130	101.65	84.8	112	208	97.2	3	38	394.82
									2.0175	

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
Attribute Indicator Ranks

2H 134-ACRE  
(2G/2H) ALTERNATIVE D

PROPOSED TO MERGE WITH 2G  
Social Significance

Ques	Summary	WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
I1	Threatened/Endangered Species?	0	0	0	0	0	0	0	9	0
I3	State Listed Cultural Resource?	0	0	0	0	0	0	0	9	0
I4	Unusual or rare local type?	0	0	0	0	0	0	0	3	0
I6	Substantial previous \$ expenditure?	0	0	0	0	0	0	0	1	0
I8	Features sensitive to flooding?	0	0	0	0	0	0	1	0	0
I9	Downslope sensitive features in floodplain?	0	0	0	0	0	0	1	0	0
I18	Features in erosion prone areas?	0	0	0	0	0	0	1	0	0
I23	Education opportunity?	0	0	0	0	0	0	0	1	0
I24	Research resource?	0	0	0	0	0	0	0	1	0
I26	Recreation in deficient area?	0	0	0	0	0	0	0	3	0
I27	Recreation access point?	0	0	0	0	0	0	0	3	0
Q1_3	Freeze-over > one month?	0	0	0	0	0	0	0	0	0
Q2_1_1	Area < 5 acres?	0	0	0	0	0	0	0	0	x 0.965
Q2_1_2	Area > 40 acres?	4	0	0	0	0	0	0	0	21
Q2_1_2A	Area > 1 acre	0	1	3	3	3	9	0	0	0
Q2_1_3	Area > 200 acres?	12	1	3	3	3	9	0	0	63
Q2_2_1	Forested area < 5 acres ?	0	0	0	0	0	0	0	0	0
Q2_2_1A	Forested area < 1 acre	0	0	0	0	0	1	0	0	0
Q2_2_1B	Forested area > 1 ac, < 40 acres	0	0	0	0	0	3	0	0	0
Q2_2_2	Forested area > 40 acres ?	10	0	0	0	0	3	0	0	21
Q5_1_2	AA > 20% of watershed?	6	0	0	0	0	0	0	0	11
Q5_2	Upslope wet depressions > 5% of watershed?	0	0	0	0	0	0	0	0	0
Q5_3	AA outside annual floodplain ?	0	x 0.8	0	0	0	0	0	0	0
Q7	v < 10 cm/s?	6	0	0	0	0	0	0	0	0
Q8_1	Permanent inlet?	2	9	1	1	3	0	0	0	14
Q8_2	Intermittent inlet?	2	3	1	1	1	0	0	0	8
Q8_3	Permanent outlet?	0	9	1	1	1	0	0	0	30
Q8_4	Intermittent outlet?	2	3	0	0	0	0	0	0	6
Q9_1	Outlet < one third average width?	2	0	0	0	0	0	0	0	0
Q9_2	Sheet flooding?	18	0	0	0	0	0	0	0	28
Q10_B	Palustrine?	2	0	0	0	0	9	0	0	10
Q10_D	Riverine tidal?	2	9	9	9	9	0	0	0	8
Q10_E	Estuarine?	2	3	3	3	3	3	0	0	18
Q11	Fringe or island wetland?	2	9	1	1	1	0	0	0	10
Q12_AB	Dominant veg: forested and needle-leaved evergreen	1	0	0	0	0	9	0	0	0
Q12_AC	Dominant veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_AD	Dominant veg: forested and needle-leaved deciduous	1	0	0	0	0	0	0	0	0
Q12_AE	Dominant veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0
Q12_BB	Dominant veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_BC	Dominant veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_BD	Dominant veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	0	0	0	0
Q12_BE	Dominant veg: Scrub-shrub and broad-leaved deciduous	1	0	0	1	1	9	0	0	0
Q12_CA	Dominant veg: Aquatic bed and algal	2	9	1	3	9	0	0	0	6
Q12_CB	Dominant veg: Aquatic bed and floating vascular	2	9	1	9	9	0	0	0	10
Q12_CC	Dominant veg: Aquatic bed and rooted vascular	2	9	1	9	9	0	0	0	16
Q12_DA	Dominant veg: Emergent and persistent	6	1	1	1	3	3	0	0	16
Q12_DB	Dominant veg: Emergent and non-persistent	1	3	3	9	9	1	0	0	16
Q13_AA*	Secondary veg: forested and dead	0	0	0	1	0	3	0	0	0
Q13_AB*	Secondary veg: forested and needle-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_AC*	Secondary veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0	0

\* Special instructions for this indicator See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q13_AD*	Secondary veg: forested and needle-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_AE*	Secondary veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0
Q13_BA*	Secondary veg: Scrub-shrub and dead	0	0	0	0	0	1	0	0	0
Q13_BB*	Secondary veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BC*	Secondary veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BD*	Secondary veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	3	0	0	0
Q13_BE*	Secondary veg: Scrub-shrub and broad-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_CA*	Secondary veg: Aquatic bed and algal	2	3	1	3	3	0	0	0	6
Q13_CB*	Secondary veg: Aquatic bed and floating vascular	2	3	1	3	3	0	0	0	10
Q13_CC*	Secondary veg: Aquatic bed and rooted vascular	2	3	1	3	3	0	0	0	16
Q13_DA*	Secondary veg: Emergent and persistent	6	3	3	3	3	3	0	0	16
Q13_DB*	Secondary veg: Emergent and non-persistent	1	1	1	1	3	1	0	0	16
Q14_1	AA on 25 square foot island?	0	0	9	3	9	3	0	0	7
Q14_2	AA on 2 acre island?	0	0	0	0	0	0	0	0	13
Q15_1_A	Vegetation<-->Water = solid form	2	1	1	1	1	3	0	0	7
Q15_1_B	Vegetation<-->Water = intermediate	4	3	3	3	3	3	0	0	20
Q15_1_C	Vegetation<-->Water = checkerboard	4	9	9	9	9	1	0	0	47
Q15_2	Channel flow spreading?	18	9	1	9	9	0	0	0	39
Q16_A	Vegetation class = solid	0	0	1	1	1	1	0	0	0
Q16_B	Vegetation class = intermediate	0	0	1	1	3	3	0	0	0
Q16_C	Vegetation class = mosaic	0	0	1	1	3	9	0	0	0
Q17	Plant form richness	0	0	0	1	3	9	0	0	0
Q18	Upland<-->Wetland edge irregular?	1	3	3	3	3	3	0	0	6
Q19_1_A	Wind shelter?	1	0	9	9	9	0	0	0	13
Q19_1_B	Wind shelter + fetch?	0	0	0	0	0	0	0	0	0
Q19_2	Wave protection?	3	1	3	3	3	0	0	0	9
Q19_3	Upland habitat wind shelter?	0	0	0	0	1	1	0	0	0
Q20_1	Zone B shaded?	0	3	0	0	1	0	0	0	0
Q20_2	Balance sun<-->shade?	0	0	0	0	0	0	0	0	0
Q21_A	Subwatershed dominant land cover: forest and scrub?	0	0	0	0	0	9	0	0	0
Q21_E	Subwatershed dominant land cover: urban lawn/fill?	0	0	0	0	1	0	0	0	0
Q22_1_1	AA contains a Channel?	0	3	1	3	3	0	0	0	10
Q22_1_2	AA contains a Sinuous channel?	2	3	0	0	3	0	0	0	0
Q23	Is the AA Channelized?	0	x 0.8	0	0	0	0	0	0	0
Q24_2	Fine mineral soils?	4	0	0	0	0	0	0	0	0
Q24_4	Slow percolation in watershed?	1	0	0	0	0	0	0	0	0
Q25_1	Source of Inorganic sediment in buffer zone?	0	x 0.95	0	0	0	0	0	0	0
Q25_2_A	Primary source of sediment = sheetflow?	10	0	0	0	0	0	0	0	20
Q25_2_B*	Primary source of sediment = channel flow?	1	0	0	0	0	0	0	0	0
Q25_3	Wetland stabilizes erosion?	3	0	0	0	0	0	0	0	13
Q26_1	Nutrient source in buffer zone?	3	0	0	0	0	0	0	0	0
Q26_2	Primary source of nutrients = sheetflow?	9	0	0	0	0	0	0	0	0
Q26_3*	Primary source of nutrients = channel flow?	1	0	0	0	0	0	0	0	0
Q27_1	Toxic source in buffer zone?	3	0	x 0.8	x 0.8	x 0.8	x 0.9	0	0	x 0.965
Q27_2	Primary source of toxics = sheetflow?	9	x 0.7	0	0	0	0	0	0	x 0.934
Q27_3*	Primary source of toxics = channel flow?	1	x 0.5	0	0	0	0	0	0	x 0.888
Q28	Has AA been Directly altered?	x 0.8	0	0	0	0	0	0	0	x 0.822
Q29_1	Dense understory edge?	2	3	1	3	3	3	0	0	11
Q29_2	Buffer zone slopes < 5%?	0	0	0	0	0	0	0	0	0
Q30	Is AA subject to frequent Human disturbance?	x 0.95	0	0	0	0	0	0	0	x 0.933
Q31_1	Area of Zone A + Zone B > Zone C?	4	0	0	0	0	3	0	0	7

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q31_2	Area of Zone B > 10% of AA?	2	0	0	0	0	0	0	0	9
Q31_3	Area of Zone B > Zone A?	1	3	3	3	3	0	0	0	8
Q31_4	Area of submergent in Zone B > open water of Zones B + C	6	9	3	9	9	0	0	0	10
Q31_5	Area of Zone A >= 10% of Zone B and C?	0	0	0	0	1	3	0	0	0
Q31_6_A	emergent in Zone B = 0% of Zones B and C?	0	3	3	3	3	0	0	0	0
Q31_6_B	emergent in Zone B = 1% - 30% of Zones B and C?	2	3	3	3	3	1	0	0	12
Q31_6_C	emergent in Zone B = 31% - 60% of Zones B and C?	6	3	3	3	9	3	0	0	24
Q31_6_D	emergent in Zone B = 61% - 99% of Zones B and C?	18	1	1	1	3	3	0	0	41
Q31_6_E	emergent in Zone B = 100% of Zones B and C or not prese	0	0	0	0	0	3	0	0	0
Q32_A	Spatial Dominant Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q32_B	Spatial Dominant Hydroperiod = intermit exposed nontidal?	0	9	1	3	3	0	0	0	0
Q32_C	Spatial Dominant Hydroperiod = semiperm flooded nontidal	0	3	1	3	3	0	0	0	0
Q32_D	Spatial Dominant Hydroperiod = seasonally flooded nontidal	0	1	1	1	3	3	0	0	0
Q32_E	Spatial Dominant Hydroperiod = saturated nontidal?	0	**	0	1	0	1	0	0	0
Q32_F	Spatial Dominant Hydroperiod = temp flooded nontidal?	0	**	0	0	1	0	0	0	0
Q32_G	Spatial Dominant Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	1	0	0	0
Q32_H	Spatial Dominant Hydroperiod = artificially flooded nontidal?	0	0	9	9	9	0	0	0	0
Q32_I	Spatial Dominant Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q32_J	Spatial Dominant Hydroperiod = irregularly exposed tidal?	0	3	3	3	3	0	0	0	33
Q32_K	Spatial Dominant Hydroperiod = irregularly flooded tidal?	0	1	1	1	3	3	0	0	9
Q33_A*	Permanent Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q33_B*	Permanent Hydroperiod = intermit exposed nontidal?	0	3	1	3	3	0	0	0	0
Q33_C*	Permanent Hydroperiod = semiperm flooded nontidal?	0	3	1	3	3	0	0	0	0
Q33_D*	Permanent Hydroperiod = seasonally flooded nontidal?	0	1	1	1	3	3	0	0	0
Q33_E*	Permanent Hydroperiod = saturated nontidal?	0	**	0	0	0	1	0	0	0
Q33_F*	Permanent Hydroperiod = temp flooded nontidal?	0	**	0	0	0	1	0	0	0
Q33_G*	Permanent Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	0	0	0	0
Q33_H*	Permanent Hydroperiod = artificially flooded nontidal?	0	9	9	9	9	0	0	0	0
Q33_I*	Permanent Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q33_J*	Permanent Hydroperiod = irregularly exposed tidal?	0	9	3	3	3	0	0	0	33
Q33_K*	Permanent Hydroperiod = irregularly flooded tidal?	0	0	1	1	3	3	0	0	9
Q34_1	Local dams?	3	0	0	0	0	3	0	0	15
Q34_2	Upstream impoundment?	0	0	0	0	0	0	0	0	0
Q34_3_1	Flooding due to downslope impoundment?	1	0	0	0	0	0	0	0	8
Q36_1_1	Average width of erect veg in Zones A and B < 20 feet?	0	0	0	0	3	0	0	0	0
Q36_1_2	Average width of erect veg in Zones A and B > 500 feet?	6	0	1	1	0	9	0	0	12
Q36_2_3	Avg width of erect veg (d<0.5 height) in Zone B > 500 feet?	0	0	0	0	0	9	0	0	0
Q37	Open water (d>2ft,w>6ft,l>1000ft)?	0	9	0	3	9	0	0	0	21
Q38_1	Perm flood or seas flood and other < 1 mi	0	9	1	3	3	0	0	0	0
Q38_2	(nontidal with erect veg) or 1 acre hardwood and other < 0.5	0	0	0	3	1	3	0	0	0
Q38_3	(estuarine/marine) or (fw palustrine/lacustrine) and other <	0	0	0	0	0	0	0	0	0
Q38_4	mudflat or tidal scrub-shrub and other adjacent	0	0	0	1	0	0	0	0	0
Q38_5	mudflat > 5 acre or emergent veg > 5 acre and other adja	0	3	9	9	9	0	0	0	0
Q38_6	agr/early succession or evergr forest>10 acres and other <	0	0	0	0	0	0	0	0	0
Q38_7	semiperm or seas flood or perm flood/intermit exposed and	0	0	3	3	9	0	0	0	0
Q39	Special habitat features?	0	0	1	3	3	9	0	0	0
Q40_2	Bottom water > 21 degrees C?	0	0	0	0	0	0	0	0	0
Q41_1	Peak flow velocity < 10 cm/s?	6	3	3	3	3	0	0	0	15
Q41_2	Peak flow velocity > 30 cm/s?	0	0	0	0	0	0	0	0	0
Q42_1_1	>1 acre or 10% of AA: 0<v<1 ft/sec	0	3	3	3	3	0	0	0	0
Q43_A	Dominant Water Depth < 1 inch	0	1	3	1	1	3	0	0	6

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q43_B	1 in < dominant water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q43_C	5 in < dwd < 8 inches	0	9	3	9	9	0	0	0	0
Q43_D	9 in < dominant water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q43_E	21 in < dominant water depth < 39 inches	0	9	0	0	9	0	0	0	0
* Q43_F	40 in < dominant water depth < 59 inches	0	9	0	0	9	0	0	0	9
Q43_G	5 feet < dominant water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q43_H	6.5 feet < dominant water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q43_I	dominant water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q44_A*	Secondary Water Depth < 1 inch	0	0	3	1	1	3	0	0	6
Q44_B*	1 in < secondary water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q44_C*	5 in < secondary water depth < 8 inches	0	9	3	9	9	0	0	0	0
Q44_D*	9 in < secondary water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q44_E*	21 in < secondary water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q44_F*	40 in < secondary water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q44_G*	5 feet < secondary water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q44_H*	6.5 feet < secondary water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q44_I*	secondary water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q45_B	Substrate: Muck?	2	1	9	9	9	0	0	0	0
Q45_C	Substrate: peat?	6	1	9	9	9	0	0	0	0
Q45_D	Substrate: sand?	1	1	9	9	9	0	0	0	7
Q45_A	Substrate: mud?	2	1	9	9	9	1	0	0	8
Q45_E	Substrate: cobble-gravel?	0	0	0	0	0	0	0	0	13
Q45_F	Substrate: rubble?	0	0	0	0	0	0	0	0	13
Q46_B	Physical Habitat Interspersion = intermediate	0	3	0	1	3	0	0	0	0
Q46_C	Physical Habitat Interspersion = mosaic	1	9	0	3	9	0	0	0	14
Q48_A	Salinity < 0.5 ppt	1	0	0	0	1	1	0	0	0
Q49_1_1	20%-80% Pools?	0	3	0	9	9	0	0	0	0
Q49_1_2	Riffles?	0	0	0	0	0	0	0	0	0
Q49_2	Fish cover?	0	9	1	3	3	0	0	0	18
Q49_3	Carp prevalent in AA ?	0	0	0	3	0	0	0	0	0
Q50	Plants: waterfowl value?	0	3	3	1	9	1	0	0	0
Q51_2	Plant productivity > 1500 g/sq.m/yr	9	0	0	0	0	0	0	0	19
Q52_1	Freshwater Invertebrate Density > 500 sq.ft.	0	9	9	3	9	3	0	0	0
Q53_1	Tidal flat Invertebrate Density = "H"	0	3	9	9	9	1	0	0	0
Q55_1	Suspended Solids < 25 mg/l	0	3	0	1	0	0	0	0	0
Q55_3	Suspended Solids > 1200 mg/l	1	0	0	0	0	0	0	0	0
Q55_4	Suspended Solids > 4000 mg/l	3	0	0	0	0	0	0	0	0
Q61	DO limiting to fish?	0 x 0.7	0	0	0	0	0	0	0	x 0.934
Q63_1	Floodpeaks: inlet > outlet ?	0	0	0	0	0	0	0	0	0
Q63_2	Surface water inflows > outflows ?	1	0	0	0	0	0	0	0	0
Q64	Total Suspended Solids at inlet > outlet?	1	0	0	0	0	0	0	0	0
Q65_3	Warm Freshwater Fish present?	0	9	0	9	3	1	0	0	0
Q66_1_1	Group 1 Waterfowl Breeding present?	0	0	0	0	9	0	0	0	0
Q66_2_1	Waterfowl Group 1 Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_3	Black Duck Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_5	Mergansers Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_7	Bufflehead/Goldeneye Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_10	Geese Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q98	Presence of Eleocharis parvula	0	3	9	9	3	0	0	0	0
Q99	Proximity to public transportation	0	0	0	0	0	0	0	x 2	0

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

**Table F-1**  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
	Normalize by Dividing by (then multiply by 100)	130	101.65	84.8	112	208	97.2	3	38	394.82
									2.0175	

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > .1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

# ASSESSMENT AREA 2G

Table F-1  
Attribute Indicator Ranks

\*COMBINE WITH 2H → 2GH

FUTURE 1341-ACRE (ALTERNATIVE D)

Ques	Summary	Social Significance									
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON	
I1	Threatened/Endangered Species?	0	0	0	0	0	0	0	9	0	
I3	State Listed Cultural Resource?	0	0	0	0	0	0	0	9	0	
I4	Unusual or rare local type?	0	0	0	0	0	0	0	3	0	
I6	Substantial previous \$ expenditure?	0	0	0	0	0	0	0	1	0	
I8	Features sensitive to flooding?	0	0	0	0	0	0	1	0	0	
I9	Downslope sensitive features in floodplain?	0	0	0	0	0	0	1	0	0	
I18	Features in erosion prone areas?	0	0	0	0	0	0	1	0	0	
I23	Education opportunity?	0	0	0	0	0	0	0	1	0	
I24	Research resource?	0	0	0	0	0	0	0	1	0	
I26	Recreation in deficient area?	0	0	0	0	0	0	0	3	0	
I27	Recreation access point?	0	0	0	0	0	0	0	3	0	
Q1_3	Freeze-over > one month?	0	0	0	0	0	0	0	0	0	
Q2_1_1	Area < 5 acres?	0	0	0	0	0	0	0	0	x 0.965	
Q2_1_1A	Area < 1 acre	0	0	1	1	1	0	0	0	0	
Q2_1_2	Area > 40 acres?	4	0	0	0	0	0	0	0	21	
Q2_1_2A	Area > 1 acre	0	1	3	3	3	9	0	0	0	
Q2_1_3	Area > 200 acres?	12	1	3	3	3	9	0	0	63	
Q2_2_1	Forested area < 5 acres ?	0	0	0	0	0	0	0	0	0	
Q2_2_1A	Forested area < 1 acre	0	0	0	0	0	1	0	0	0	
Q2_2_1B	Forested area > 1 ac, < 40 acres	0	0	0	0	0	3	0	0	0	
Q2_2_2	Forested area > 40 acres ?	10	0	0	0	0	3	0	0	21	
Q5_1_2	AA > 20% of watershed?	6	0	0	0	0	0	0	0	11	
Q5_2	Upslope wet depressions > 5% of watershed?	0	0	0	0	0	0	0	0	0	
Q5_3	AA outside annual floodplain ?	0	x 0.8	0	0	0	0	0	0	0	
Q7	v < 10 cm/s?	6	0	0	0	0	0	0	0	0	
Q8_1	Permanent inlet?	2	9	1	1	3	0	0	0	14	
Q8_2	Intermittent inlet?	2	3	1	1	1	0	0	0	8	
Q8_3	Permanent outlet?	0	9	1	1	1	0	0	0	30	
Q8_4	Intermittent outlet?	2	3	0	0	0	0	0	0	6	
Q9_1	Outlet < one third average width?	2	0	0	0	0	0	0	0	0	
Q9_2	Sheet flooding?	18	0	0	0	0	0	0	0	28	
Q10_B	Palustrine?	2	0	0	0	0	9	0	0	10	
Q10_D	Riverine tidal?	2	9	9	9	9	0	0	0	8	
Q10_E	Estuarine?	2	3	3	3	3	3	0	0	18	
Q11	Fringe or island wetland?	2	9	1	1	1	0	0	0	10	
Q12_AB	Dominant veg: forested and needle-leaved evergreen	1	0	0	0	0	9	0	0	0	
Q12_AC	Dominant veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0	0	
Q12_AD	Dominant veg: forested and needle-leaved deciduous	1	0	0	0	0	0	0	0	0	
Q12_AE	Dominant veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0	
Q12_BB	Dominant veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	0	0	0	0	
Q12_BC	Dominant veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	0	0	0	0	
Q12_BD	Dominant veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	0	0	0	0	
Q12_BE	Dominant veg: Scrub-shrub and broad-leaved deciduous	1	0	0	1	1	9	0	0	0	
Q12_CA	Dominant veg: Aquatic bed and algal	2	9	1	3	9	0	0	0	6	
Q12_CB	Dominant veg: Aquatic bed and floating vascular	2	9	1	9	9	0	0	0	10	
Q12_CC	Dominant veg: Aquatic bed and rooted vascular	2	9	1	9	9	0	0	0	16	
Q12_DA	Dominant veg: Emergent and persistent	6	1	1	1	3	3	0	0	16	
Q12_DB	Dominant veg: Emergent and non-persistent	1	3	3	9	9	1	0	0	16	
Q13_AA*	Secondary veg: forested and dead	0	0	0	1	0	3	0	0	0	
Q13_AB*	Secondary veg: forested and needle-leaved evergreen	1	0	0	0	0	3	0	0	0	
Q13_AC*	Secondary veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0	0	

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q13_AD*	Secondary veg: forested and needle-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_AE*	Secondary veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0
Q13_BA*	Secondary veg: Scrub-shrub and dead	0	0	0	0	0	1	0	0	0
Q13_BB*	Secondary veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BC*	Secondary veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BD*	Secondary veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	3	0	0	0
Q13_BE*	Secondary veg: Scrub-shrub and broad-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_CA*	Secondary veg: Aquatic bed and algal	2	3	1	3	3	0	0	0	6
Q13_CB*	Secondary veg: Aquatic bed and floating vascular	2	3	1	3	3	0	0	0	10
Q13_CC*	Secondary veg: Aquatic bed and rooted vascular	2	3	1	3	3	0	0	0	16
Q13_DA*	Secondary veg: Emergent and persistent	6	3	3	3	3	3	0	0	16
Q13_DB*	Secondary veg: Emergent and non-persistent	1	1	1	1	3	1	0	0	16
Q14_1	AA on 25 square foot island?	0	0	9	3	9	3	0	0	7
Q14_2	AA on 2 acre island?	0	0	0	0	0	0	0	0	13
Q15_1_A	Vegetation<-->Water = solid form	2	1	1	1	1	3	0	0	7
Q15_1_B	Vegetation<-->Water = intermediate	4	3	3	3	3	3	0	0	20
Q15_1_C	Vegetation<-->Water = checkerboard	4	9	9	9	9	1	0	0	47
Q15_2	Channel flow spreading?	18	9	1	9	9	0	0	0	39
Q16_A	Vegetation class = solid -	0	0	1	1	1	1	0	0	0
Q16_B	Vegetation class = intermediate	0	0	1	1	3	3	0	0	0
Q16_C	Vegetation class = mosaic	0	0	1	1	3	9	0	0	0
Q17	Plant form richness	0	0	0	1	3	9	0	0	0
Q18	Upland<-->Wetland edge irregular?	1	3	3	3	3	3	0	0	6
Q19_1_A	Wind shelter?	1	0	9	9	9	0	0	0	13
Q19_1_B	Wind shelter + fetch?	0	0	0	0	0	0	0	0	0
Q19_2	Wave protection?	3	1	3	3	3	0	0	0	9
Q19_3	Upland habitat wind shelter?	0	0	0	0	1	1	0	0	0
Q20_1	Zone B shaded?	0	3	0	0	1	0	0	0	0
Q20_2	Balance sun<-->shade?	0	0	0	0	0	0	0	0	0
Q21_A	Subwatershed dominant land cover: forest and scrub?	0	0	0	0	0	9	0	0	0
Q21_E	Subwatershed dominant land cover: urban lawn/fill?	0	0	0	0	1	0	0	0	0
Q22_1_1	AA contains a Channel?	0	3	1	3	3	0	0	0	10
Q22_1_2	AA contains a Sinuous channel?	2	3	0	0	3	0	0	0	0
Q23	Is the AA Channelized?	0	x 0.8	0	0	0	0	0	0	0
Q24_2	Fine mineral soils?	4	0	0	0	0	0	0	0	0
Q24_4	Slow percolation in watershed?	1	0	0	0	0	0	0	0	0
Q25_1	Source of Inorganic sediment in buffer zone?	0	x 0.95	0	0	0	0	0	0	0
Q25_2_A	Primary source of sediment = sheetflow?	10	0	0	0	0	0	0	0	20
Q25_2_B*	Primary source of sediment = channel flow?	1	0	0	0	0	0	0	0	0
Q25_3	Wetland stabilizes erosion?	3	0	0	0	0	0	0	0	13
Q26_1	Nutrient source in buffer zone?	3	0	0	0	0	0	0	0	0
Q26_2	Primary source of nutrients = sheetflow?	9	0	0	0	0	0	0	0	0
Q26_3*	Primary source of nutrients = channel flow?	1	0	0	0	0	0	0	0	0
Q27_1	Toxic source in buffer zone?	3	0	x 0.8	x 0.8	x 0.8	x 0.9	0	0	x 0.965
Q27_2	Primary source of toxics = sheetflow?	9	x 0.7	0	0	0	0	0	0	x 0.934
Q27_3*	Primary source of toxics = channel flow?	1	x 0.5	0	0	0	0	0	0	x 0.888
Q28	Has AA been Directly altered?	x 0.8	0	0	0	0	0	0	0	x 0.822
Q29_1	Dense understory edge?	2	3	1	3	3	3	0	0	11
Q29_2	Buffer zone slopes < 5%?	0	0	0	0	0	0	0	0	0
Q30	Is AA subject to frequent Human disturbance?	x 0.95	0	0	0	0	0	0	0	x 0.933
Q31_1	Area of Zone A + Zone B > Zone C?	4	0	0	0	0	3	0	0	7

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q31_2	Area of Zone B > 10% of AA?	2	0	0	0	0	0	0	0	9
Q31_3	Area of Zone B > Zone A?	1	3	3	3	3	0	0	0	8
Q31_4	Area of submergent in Zone B > open water of Zones B + C	6	9	3	9	9	0	0	0	10
Q31_5	Area of Zone A >= 10% of Zone B and C?	0	0	0	0	1	3	0	0	0
Q31_6_A	emergent in Zone B = 0% of Zones B and C?	0	3	3	3	3	0	0	0	0
Q31_6_B	emergent in Zone B = 1% - 30% of Zones B and C?	2	3	3	3	3	1	0	0	12
Q31_6_C	emergent in Zone B = 31% - 60% of Zones B and C?	6	3	3	3	9	3	0	0	24
Q31_6_D	emergent in Zone B = 61% - 99% of Zones B and C?	18	1	1	1	3	3	0	0	41
Q31_6_E	emergent in Zone B = 100% of Zones B and C or not prese	0	0	0	0	0	3	0	0	0
Q32_A	Spatial Dominant Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q32_B	Spatial Dominant Hydroperiod = intermit exposed nontidal?	0	9	1	3	3	0	0	0	0
Q32_C	Spatial Dominant Hydroperiod = semiperm flooded nontidal	0	3	1	3	3	0	0	0	0
Q32_D	Spatial Dominant Hydroperiod = seasonally flooded nontidal	0	1	1	1	3	3	0	0	0
Q32_E	Spatial Dominant Hydroperiod = saturated nontidal?	0	**	0	1	0	1	0	0	0
Q32_F	Spatial Dominant Hydroperiod = temp flooded nontidal?	0	**	0	0	1	0	0	0	0
Q32_G	Spatial Dominant Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	1	0	0	0
Q32_H	Spatial Dominant Hydroperiod = artificially flooded nontidal?	0	0	9	9	9	0	0	0	0
Q32_I	Spatial Dominant Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q32_J	Spatial Dominant Hydroperiod = irregularly exposed tidal?	0	3	3	3	3	0	0	0	33
Q32_K	Spatial Dominant Hydroperiod = irregularly flooded tidal?	0	1	1	1	3	3	0	0	9
Q33_A*	Permanent Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q33_B*	Permanent Hydroperiod = intermit exposed nontidal?	0	3	1	3	3	0	0	0	0
Q33_C*	Permanent Hydroperiod = semiperm flooded nontidal?	0	3	1	3	3	0	0	0	0
Q33_D*	Permanent Hydroperiod = seasonally flooded nontidal?	0	1	1	1	3	3	0	0	0
Q33_E*	Permanent Hydroperiod = saturated nontidal?	0	**	0	0	0	1	0	0	0
Q33_F*	Permanent Hydroperiod = temp flooded nontidal?	0	**	0	0	0	1	0	0	0
Q33_G*	Permanent Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	0	0	0	0
Q33_H*	Permanent Hydroperiod = artificially flooded nontidal?	0	9	9	9	9	0	0	0	0
Q33_I*	Permanent Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q33_J*	Permanent Hydroperiod = irregularly exposed tidal?	0	9	3	3	3	0	0	0	33
Q33_K*	Permanent Hydroperiod = irregularly flooded tidal?	0	0	1	1	3	3	0	0	9
Q34_1	Local dams?	3	0	0	0	0	3	0	0	15
Q34_2	Upstream impoundment?	0	0	0	0	0	0	0	0	0
Q34_3_1	Flooding due to downslope impoundment?	1	0	0	0	0	0	0	0	8
Q36_1_1	Average width of erect veg in Zones A and B < 20 feet?	0	0	0	0	3	0	0	0	0
Q36_1_2	Average width of erect veg in Zones A and B > 500 feet?	6	0	1	1	0	9	0	0	12
Q36_2_3	Avg width of erect veg (d<0.5 height) in Zone B > 500 feet?	0	0	0	0	0	9	0	0	0
Q37	Open water (d>2ft,w>6ft,l>1000ft)?	0	9	0	3	9	0	0	0	21
Q38_1	Perm flood or seas flood and other < 1 mi	0	9	1	3	3	0	0	0	0
Q38_2	(nontidal with erect veg) or 1 acre hardwood and other < 0.5	0	0	0	3	1	3	0	0	0
Q38_3	(estuarine/marine) or (fw palustrine/lacustrine) and other <	0	0	0	0	0	0	0	0	0
Q38_4	mudflat or tidal scrub-shrub and other adjacent	0	0	0	1	0	0	0	0	0
Q38_5	mudflat > 5 acre or emergent veg > 5 acre and other adja	0	3	9	9	9	0	0	0	0
Q38_6	agr/early succession or evergr forest>10 acres and other <	0	0	0	0	0	0	0	0	0
Q38_7	semiperm or seas flood or perm flood/intermit exposed and	0	0	3	3	9	0	0	0	0
Q39	Special habitat features?	0	0	1	3	3	9	0	0	0
Q40_2	Bottom water > 21 degrees C?	0	0	0	0	0	0	0	0	0
Q41_1	Peak flow velocity < 10 cm/s?	6	3	3	3	3	0	0	0	15
Q41_2	Peak flow velocity > 30 cm/s?	0	0	0	0	0	0	0	0	0
Q42_1_1	>1 acre or 10% of AA: 0<v<1 ft/sec	0	3	3	3	3	0	0	0	0
Q43_A	Dominant Water Depth < 1 inch	0	1	3	1	1	3	0	0	6

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q43_B	1 in < dominant water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q43_C	5 in < dwd < 8 inches	0	9	3	9	9	0	0	0	0
Q43_D	9 in < dominant water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q43_E	21 in < dominant water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q43_F	40 in < dominant water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q43_G	5 feet < dominant water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q43_H	6.5 feet < dominant water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q43_I	dominant water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q44_A*	Secondary Water Depth < 1 inch	0	0	3	1	1	3	0	0	6
Q44_B*	1 in < secondary water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q44_C*	5 in < secondary water depth < 8 inches	0	9	3	9	9	0	0	0	0
Q44_D*	9 in < secondary water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q44_E*	21 in < secondary water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q44_F*	40 in < secondary water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q44_G*	5 feet < secondary water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q44_H*	6.5 feet < secondary water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q44_I*	secondary water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q45_B	Substrate: Muck?	2	1	9	9	9	0	0	0	0
Q45_C	Substrate: peat?	6	1	9	9	9	0	0	0	0
Q45_D	Substrate: sand?	1	1	9	9	9	0	0	0	7
Q45_A	Substrate: mud?	2	1	9	9	9	1	0	0	8
Q45_E	Substrate: cobble-gravel?	0	0	0	0	0	0	0	0	13
Q45_F	Substrate: rubble?	0	0	0	0	0	0	0	0	13
Q46_B	Physical Habitat Interspersion = intermediate	0	3	0	1	3	0	0	0	0
Q46_C	Physical Habitat Interspersion = mosaic	1	9	0	3	9	0	0	0	14
Q48_A	Salinity < 0.5 ppt	1	0	0	0	1	1	0	0	0
Q49_1_1	20%-80% Pools?	0	3	0	9	9	0	0	0	0
Q49_1_2	Riffles?	0	0	0	0	0	0	0	0	0
Q49_2	Fish cover?	0	9	1	3	3	0	0	0	18
Q49_3	Carp prevalent in AA ?	0	0	0	3	0	0	0	0	0
Q50	Plants: waterfowl value?	0	3	3	1	9	1	0	0	0
Q51_2	Plant productivity > 1500 g/sq.m/yr	9	0	0	0	0	0	0	0	19
Q52_1	Freshwater Invertebrate Density > 500 sq.ft.	0	9	9	3	9	3	0	0	0
Q53_1	Tidal flat Invertebrate Density = "H"	0	3	9	9	9	1	0	0	0
Q55_1	Suspended Solids < 25 mg/l	0	3	0	1	0	0	0	0	0
Q55_3	Suspended Solids > 1200 mg/l	1	0	0	0	0	0	0	0	0
Q55_4	Suspended Solids > 4000 mg/l	3	0	0	0	0	0	0	0	0
Q61	DO limiting to fish?	0	x 0.7	0	0	0	0	0	0	x 0.934
Q63_1	Floodpeaks: inlet > outlet ?	0	0	0	0	0	0	0	0	0
Q63_2	Surface water inflows > outflows ?	1	0	0	0	0	0	0	0	0
Q64	Total Suspended Solids at inlet > outlet?	1	0	0	0	0	0	0	0	0
Q65_3	Warm Freshwater Fish present?	0	9	0	9	3	1	0	0	0
Q66_1_1	Group 1 Waterfowl Breeding present?	0	0	0	0	9	0	0	0	0
Q66_2_1	Waterfowl Group 1 Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_3	Black Duck Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_5	Mergansers Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_7	Bufflehead/Goldeneye Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_10	Geese Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q98	Presence of Eleocharis parvula	0	3	9	9	3	0	0	0	0
Q99	Proximity to public transportation	0	0	0	0	0	0	0	x 2	0

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

**Table F-1**  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
	Normalize by Dividing by (then multiply by 100)	130	101.65	84.8	112	208	97.2	3	38	394.82
									2.0175	

\* Special instructions for this indicator: See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise multiply by 0

# ASSESSMENT AREA 2T (BRACKISH)

FUTURE 134-ACRE (ALT. D)

SAME AS 2E1 (206 ACRE)

Table F-1  
Attribute Indicator Ranks

## Social Significance

Ques	Summary	WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
I1	Threatened/Endangered Species?	0	0	0	0	0	0	0	9	0
I3	State Listed Cultural Resource?	0	0	0	0	0	0	0	9	0
I4	Unusual or rare local type?	0	0	0	0	0	0	0	3	0
I6	Substantial previous \$ expenditure?	0	0	0	0	0	0	0	1	0
I8	Features sensitive to flooding?	0	0	0	0	0	0	1	0	0
I9	Downslope sensitive features in floodplain?	0	0	0	0	0	0	1	0	0
I18	Features in erosion prone areas?	0	0	0	0	0	0	1	0	0
I23	Education opportunity?	0	0	0	0	0	0	0	1	0
I24	Research resource?	0	0	0	0	0	0	0	1	0
I26	Recreation in deficient area?	0	0	0	0	0	0	0	3	0
I27	Recreation access point?	0	0	0	0	0	0	0	3	0
Q1_3	Freeze-over > one month?	0	0	0	0	0	0	0	0	0
Q2_1_1	Area < 5 acres?	0	0	0	0	0	0	0	0	x 0.965
Q2_1_1A	Area < 1 acre	0	0	1	1	1	0	0	0	0
Q2_1_2	Area > 40 acres?	4	0	0	0	0	0	0	0	21
Q2_1_2A	Area > 1 acre	0	1	3	3	3	9	0	0	0
Q2_1_3	Area > 200 acres?	12	1	3	3	3	9	0	0	63
Q2_2_1	Forested area < 5 acres?	0	0	0	0	0	0	0	0	0
Q2_2_1A	Forested area < 1 acre	0	0	0	0	0	1	0	0	0
Q2_2_1B	Forested area > 1 ac, < 40 acres	0	0	0	0	0	3	0	0	0
Q2_2_2	Forested area > 40 acres?	10	0	0	0	0	3	0	0	21
Q5_1_2	AA > 20% of watershed?	6	0	0	0	0	0	0	0	11
Q5_2	Upslope wet depressions > 5% of watershed?	0	0	0	0	0	0	0	0	0
Q5_3	AA outside annual floodplain?	0	x 0.8	0	0	0	0	0	0	0
Q7	v < 10 cm/s?	6	0	0	0	0	0	0	0	0
Q8_1	Permanent inlet?	2	9	1	1	3	0	0	0	14
Q8_2	Intermittent inlet?	2	3	1	1	1	0	0	0	8
Q8_3	Permanent outlet?	0	9	1	1	1	0	0	0	30
Q8_4	Intermittent outlet?	2	3	0	0	0	0	0	0	6
Q9_1	Outlet < one third average width?	2	0	0	0	0	0	0	0	0
Q9_2	Sheet flooding?	18	0	0	0	0	0	0	0	28
Q10_B	Palustrine?	2	0	0	0	0	9	0	0	10
Q10_D	Riverine tidal?	2	9	9	9	9	0	0	0	8
Q10_E	Estuarine?	2	3	3	3	3	3	0	0	18
Q11	Fringe or island wetland?	2	9	1	1	1	0	0	0	10
Q12_AB	Dominant veg: forested and needle-leaved evergreen	1	0	0	0	0	9	0	0	0
Q12_AC	Dominant veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_AD	Dominant veg: forested and needle-leaved deciduous	1	0	0	0	0	0	0	0	0
Q12_AE	Dominant veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0
Q12_BB	Dominant veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_BC	Dominant veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_BD	Dominant veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	0	0	0	0
Q12_BE	Dominant veg: Scrub-shrub and broad-leaved deciduous	1	0	0	1	1	9	0	0	0
Q12_CA	Dominant veg: Aquatic bed and algal	2	9	1	3	9	0	0	0	6
Q12_CB	Dominant veg: Aquatic bed and floating vascular	2	9	1	9	9	0	0	0	10
Q12_CC	Dominant veg: Aquatic bed and rooted vascular	2	9	1	9	9	0	0	0	16
Q12_DA	Dominant veg: Emergent and persistent	6	1	1	1	3	3	0	0	16
Q12_DB	Dominant veg: Emergent and non-persistent	1	3	3	9	9	1	0	0	16
Q13_AA*	Secondary veg: forested and dead	0	0	0	1	0	3	0	0	0
Q13_AB*	Secondary veg: forested and needle-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_AC*	Secondary veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0	0

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_5-Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q13_AD*	Secondary veg: forested and needle-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_AE*	Secondary veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0
Q13_BA*	Secondary veg: Scrub-shrub and dead	0	0	0	0	0	1	0	0	0
Q13_BB*	Secondary veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BC*	Secondary veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BD*	Secondary veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	3	0	0	0
Q13_BE*	Secondary veg: Scrub-shrub and broad-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_CA*	Secondary veg: Aquatic bed and algal	2	3	1	3	3	0	0	0	6
Q13_CB*	Secondary veg: Aquatic bed and floating vascular	2	3	1	3	3	0	0	0	10
Q13_CC*	Secondary veg: Aquatic bed and rooted vascular	2	3	1	3	3	0	0	0	16
Q13_DA*	Secondary veg: Emergent and persistent	6	3	3	3	3	3	0	0	16
Q13_DB*	Secondary veg: Emergent and non-persistent	1	1	1	1	3	1	0	0	16
Q14_1	AA on 25 square foot island?	0	0	9	3	9	3	0	0	7
Q14_2	AA on 2 acre island?	0	0	0	0	0	0	0	0	13
Q15_1_A	Vegetation<-->Water = solid form	2	1	1	1	1	3	0	0	7
Q15_1_B	Vegetation<-->Water = intermediate	4	3	3	3	3	3	0	0	20
Q15_1_C	Vegetation<-->Water = checkerboard	4	9	9	9	9	1	0	0	47
Q15_2	Channel flow spreading?	18	9	1	9	9	0	0	0	39
Q16_A	Vegetation class = solid	0	0	1	1	1	1	0	0	0
Q16_B	Vegetation class = intermediate	0	0	1	1	3	3	0	0	0
Q16_C	Vegetation class = mosaic	0	0	1	1	3	9	0	0	0
Q17	Plant form richness	0	0	0	1	3	9	0	0	0
Q18	Upland<-->Wetland edge irregular?	1	3	3	3	3	3	0	0	6
Q19_1_A	Wind shelter?	1	0	9	9	9	0	0	0	13
Q19_1_B	Wind shelter + fetch?	0	0	0	0	0	0	0	0	0
Q19_2	Wave protection?	3	1	3	3	3	0	0	0	9
Q19_3	Upland habitat wind shelter?	0	0	0	0	1	1	0	0	0
Q20_1	Zone B shaded?	0	3	0	0	1	0	0	0	0
Q20_2	Balance sun<-->shade?	0	0	0	0	0	0	0	0	0
Q21_A	Subwatershed dominant land cover: forest and scrub?	0	0	0	0	0	9	0	0	0
Q21_E	Subwatershed dominant land cover: urban lawn/fill?	0	0	0	0	1	0	0	0	0
Q22_1_1	AA contains a Channel?	0	3	1	3	3	0	0	0	10
Q22_1_2	AA contains a Sinuous channel?	2	3	0	0	3	0	0	0	0
Q23	Is the AA Channelized?	0 x 0.8	0	0	0	0	0	0	0	0
Q24_2	Fine mineral soils?	4	0	0	0	0	0	0	0	0
Q24_4	Slow percolation in watershed?	1	0	0	0	0	0	0	0	0
Q25_1	Source of Inorganic sediment in buffer zone?	0 x 0.95	0	0	0	0	0	0	0	0
Q25_2_A	Primary source of sediment = sheetflow?	10	0	0	0	0	0	0	0	20
Q25_2_B*	Primary source of sediment = channel flow?	1	0	0	0	0	0	0	0	0
Q25_3	Wetland stabilizes erosion?	3	0	0	0	0	0	0	0	13
Q26_1	Nutrient source in buffer zone?	3	0	0	0	0	0	0	0	0
Q26_2	Primary source of nutrients = sheetflow?	9	0	0	0	0	0	0	0	0
Q26_3*	Primary source of nutrients = channel flow?	1	0	0	0	0	0	0	0	0
Q27_1	Toxic source in buffer zone?	3	0 x 0.8	x 0.8	x 0.8	x 0.9	0	0	x 0.965	
Q27_2	Primary source of toxics = sheetflow?	9 x 0.7	0	0	0	0	0	0	x 0.934	
Q27_3*	Primary source of toxics = channel flow?	1 x 0.5	0	0	0	0	0	0	x 0.888	
Q28	Has AA been Directly altered?	x 0.8	0	0	0	0	0	0	0	x 0.822
Q29_1	Dense understory edge?	2	3	1	3	3	3	0	0	11
Q29_2	Buffer zone slopes < 5%?	0	0	0	0	0	0	0	0	0
Q30	Is AA subject to frequent Human disturbance?	x 0.95	0	0	0	0	0	0	0	x 0.933
Q31_1	Area of Zone A + Zone B > Zone C?	4	0	0	0	0	3	0	0	7

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q31_2	Area of Zone B > 10% of AA?	2	0	0	0	0	0	0	0	9
Q31_3	Area of Zone B > Zone A?	1	3	3	3	3	0	0	0	8
Q31_4	Area of submergent in Zone B > open water of Zones B + C	6	9	3	9	9	0	0	0	10
Q31_5	Area of Zone A >= 10% of Zone B and C?	0	0	0	0	1	3	0	0	0
Q31_6_A	emergent in Zone B = 0% of Zones B and C?	0	3	3	3	3	0	0	0	0
Q31_6_B	emergent in Zone B = 1% - 30% of Zones B and C?	2	3	3	3	3	1	0	0	12
Q31_6_C	emergent in Zone B = 31% - 60% of Zones B and C?	6	3	3	3	9	3	0	0	24
Q31_6_D	emergent in Zone B = 61% - 99% of Zones B and C?	18	1	1	1	3	3	0	0	41
Q31_6_E	emergent in Zone B = 100% of Zones B and C or not prese	0	0	0	0	0	3	0	0	0
Q32_A	Spatial Dominant Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q32_B	Spatial Dominant Hydroperiod = intermit exposed nontidal?	0	9	1	3	3	0	0	0	0
Q32_C	Spatial Dominant Hydroperiod = semiperm flooded nontidal	0	3	1	3	3	0	0	0	0
Q32_D	Spatial Dominant Hydroperiod = seasonally flooded nontidal	0	1	1	1	3	3	0	0	0
Q32_E	Spatial Dominant Hydroperiod = saturated nontidal?	0	**	0	1	0	1	0	0	0
Q32_F	Spatial Dominant Hydroperiod = temp flooded nontidal?	0	**	0	0	1	0	0	0	0
Q32_G	Spatial Dominant Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	1	0	0	0
Q32_H	Spatial Dominant Hydroperiod = artificially flooded nontidal?	0	0	9	9	9	0	0	0	0
Q32_I	Spatial Dominant Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q32_J	Spatial Dominant Hydroperiod = irregularly exposed tidal?	0	3	3	3	3	0	0	0	33
Q32_K	Spatial Dominant Hydroperiod = irregularly flooded tidal?	0	1	1	1	3	3	0	0	9
Q33_A*	Permanent Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q33_B*	Permanent Hydroperiod = intermit exposed nontidal?	0	3	1	3	3	0	0	0	0
Q33_C*	Permanent Hydroperiod = semiperm flooded nontidal?	0	3	1	3	3	0	0	0	0
Q33_D*	Permanent Hydroperiod = seasonally flooded nontidal?	0	1	1	1	3	3	0	0	0
Q33_E*	Permanent Hydroperiod = saturated nontidal?	0	**	0	0	0	1	0	0	0
Q33_F*	Permanent Hydroperiod = temp flooded nontidal?	0	**	0	0	0	1	0	0	0
Q33_G*	Permanent Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	0	0	0	0
Q33_H*	Permanent Hydroperiod = artificially flooded nontidal?	0	9	9	9	9	0	0	0	0
Q33_I*	Permanent Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q33_J*	Permanent Hydroperiod = irregularly exposed tidal?	0	9	3	3	3	0	0	0	33
Q33_K*	Permanent Hydroperiod = irregularly flooded tidal?	0	0	1	1	3	3	0	0	9
Q34_1	Local dams?	3	0	0	0	0	3	0	0	15
Q34_2	Upstream impoundment?	0	0	0	0	0	0	0	0	0
Q34_3_1	Flooding due to downslope impoundment?	1	0	0	0	0	0	0	0	8
Q36_1_1	Average width of erect veg in Zones A and B < 20 feet?	0	0	0	0	3	0	0	0	0
Q36_1_2	Average width of erect veg in Zones A and B > 500 feet?	6	0	1	1	0	9	0	0	12
Q36_2_3	Avg width of erect veg (d<0.5 height) in Zone B > 500 feet?	0	0	0	0	0	9	0	0	0
Q37	Open water (d>2ft, w>6ft, l>1000ft)?	0	9	0	3	9	0	0	0	21
Q38_1	Perm flood or seas flood and other < 1 mi	0	9	1	3	3	0	0	0	0
Q38_2	(nontidal with erect veg) or 1 acre hardwood and other < 0.5	0	0	0	3	1	3	0	0	0
Q38_3	(estuarine/marine) or (fw palustrine/lacustrine) and other <	0	0	0	0	0	0	0	0	0
Q38_4	mudflat or tidal scrub-shrub and other adjacent	0	0	0	1	0	0	0	0	0
Q38_5	mudflat > 5 acre or emergent veg > 5 acre and other adja	0	3	9	9	9	0	0	0	0
Q38_6	agr/early succession or evergr forest>10 acres and other <	0	0	0	0	0	0	0	0	0
Q38_7	semiperm or seas flood or perm flood/intermit exposed and	0	0	3	3	9	0	0	0	0
Q39	Special habitat features?	0	0	1	3	3	9	0	0	0
Q40_2	Bottom water > 21 degrees C?	0	0	0	0	0	0	0	0	0
Q41_1	Peak flow velocity < 10 cm/s?	6	3	3	3	3	0	0	0	15
Q41_2	Peak flow velocity > 30 cm/s?	0	0	0	0	0	0	0	0	0
Q42_1_1	>1 acre or 10% of AA: 0<v<1 ft/sec	0	3	3	3	3	0	0	0	0
Q43_A	Dominant Water Depth < 1 inch	0	1	3	1	1	3	0	0	6

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q43_B	1 in < dominant water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q43_C	5 in < dwd < 8 inches	0	9	3	9	9	0	0	0	0
Q43_D	9 in < dominant water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q43_E	21 in < dominant water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q43_F	40 in < dominant water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q43_G	5 feet < dominant water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q43_H	6.5 feet < dominant water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q43_I	dominant water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q44_A*	Secondary Water Depth < 1 inch	0	0	3	1	1	3	0	0	6
Q44_B*	1 in < secondary water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q44_C*	5 in < secondary water depth < 8 inches	0	9	3	9	9	0	0	0	0
Q44_D*	9 in < secondary water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q44_E*	21 in < secondary water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q44_F*	40 in < secondary water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q44_G*	5 feet < secondary water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q44_H*	6.5 feet < secondary water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q44_I*	secondary water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q45_B	Substrate: Muck?	2	1	9	9	9	0	0	0	0
Q45_C	Substrate: peat?	6	1	9	9	9	0	0	0	0
Q45_D	Substrate: sand?	1	1	9	9	9	0	0	0	7
Q45_A	Substrate: mud?	2	1	9	9	9	1	0	0	8
Q45_E	Substrate: cobble-gravel?	0	0	0	0	0	0	0	0	13
Q45_F	Substrate: rubble?	0	0	0	0	0	0	0	0	13
Q46_B	Physical Habitat Interspersion = intermediate	0	3	0	1	3	0	0	0	0
Q46_C	Physical Habitat Interspersion = mosaic	1	9	0	3	9	0	0	0	14
Q48_A	Salinity < 0.5 ppt	1	0	0	0	1	1	0	0	0
Q49_1_1	20%-80% Pools?	0	3	0	9	9	0	0	0	0
Q49_1_2	Riffles?	0	0	0	0	0	0	0	0	0
Q49_2	Fish cover?	0	9	1	3	3	0	0	0	18
Q49_3	Carp prevalent in AA ?	0	0	0	3	0	0	0	0	0
Q50	Plants: waterfowl value?	0	3	3	1	9	1	0	0	0
Q51_2	Plant productivity > 1500 g/sq.m/yr	9	0	0	0	0	0	0	0	19
Q52_1	Freshwater Invertebrate Density > 500 sq.ft.	0	9	9	3	9	3	0	0	0
Q53_1	Tidal flat Invertebrate Density = "H"	0	3	9	9	9	1	0	0	0
Q55_1	Suspended Solids < 25 mg/l	0	3	0	1	0	0	0	0	0
Q55_3	Suspended Solids > 1200 mg/l	1	0	0	0	0	0	0	0	0
Q55_4	Suspended Solids > 4000 mg/l	3	0	0	0	0	0	0	0	0
Q61	DO limiting to fish?	0	x 0.7	0	0	0	0	0	0	x 0.934
Q63_1	Floodpeaks: inlet > outlet ?	0	0	0	0	0	0	0	0	0
Q63_2	Surface water inflows > outflows ?	1	0	0	0	0	0	0	0	0
Q64	Total Suspended Solids at inlet > outlet?	1	0	0	0	0	0	0	0	0
Q65_3	Warm Freshwater Fish present?	0	9	0	9	3	1	0	0	0
Q66_1_1	Group 1 Waterfowl Breeding present?	0	0	0	0	9	0	0	0	0
Q66_2_1	Waterfowl Group 1 Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_3	Black Duck Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_5	Mergansers Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_7	Bufflehead/Goldeneye Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_10	Geese Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q98	Presence of Eleocharis parvula	0	3	9	9	3	0	0	0	0
Q99	Proximity to public transportation	0	0	0	0	0	0	0	x 2	0

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
	Normalize by Dividing by (then multiply by 100)	130	101.65	84.8	112	208	97.2	3	38	394.82
									2.0175	

FINAL SCORES SAME AS

2T 206

\* Special instructions for this indicator See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

# ASSESSMENT AREA 2E1 (BRACKISH)

## FUTURE 206-ACRE

### (MEADOWLAND MILLS ALTERNATIVE)

Table F-1  
Attribute Indicator-Ranks

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
I1	Threatened/Endangered Species?	0	0	0	0	0	0	0	9	0
I3	State Listed Cultural Resource?	0	0	0	0	0	0	0	9	0
I4	Unusual or rare local type?	0	0	0	0	0	0	0	3	0
I6	Substantial previous \$ expenditure?	0	0	0	0	0	0	0	1	0
I8	Features sensitive to flooding?	0	0	0	0	0	0	1	0	0
I9	Downslope sensitive features in floodplain?	0	0	0	0	0	0	1	0	0
I18	Features in erosion prone areas?	0	0	0	0	0	0	1	0	0
I23	Education opportunity?	0	0	0	0	0	0	0	1	0
I24	Research resource?	0	0	0	0	0	0	0	1	0
I26	Recreation in deficient area?	0	0	0	0	0	0	0	3	0
I27	Recreation access point?	0	0	0	0	0	0	0	3	0
Q1_3	Freeze-over > one month?	0	0	0	0	0	0	0	0	0
Q2_1_1	Area < 5 acres?	0	0	0	0	0	0	0	0	x 0.965
Q2_1_1A	Area < 1 acre	0	0	1	1	1	0	0	0	0
Q2_1_2	Area > 40 acres?	4	0	0	0	0	0	0	0	21
Q2_1_2A	Area > 1 acre	0	1	3	3	3	9	0	0	0
Q2_1_3	Area > 200 acres?	12	1	3	3	3	9	0	0	63
Q2_2_1	Forested area < 5 acres?	0	0	0	0	0	0	0	0	0
Q2_2_1A	Forested area < 1 acre	0	0	0	0	0	1	0	0	0
Q2_2_1B	Forested area > 1 ac; < 40 acres	0	0	0	0	0	3	0	0	0
Q2_2_2	Forested area > 40 acres?	10	0	0	0	0	3	0	0	21
Q5_1_2	AA > 20% of watershed?	6	0	0	0	0	0	0	0	11
Q5_2	Upslope wet depressions > 5% of watershed?	0	0	0	0	0	0	0	0	0
Q5_3	AA outside annual floodplain?	0	x 0.8	0	0	0	0	0	0	0
Q7	v < 10 cm/s?	6	0	0	0	0	0	0	0	0
Q8_1	Permanent inlet?	2	9	1	1	3	0	0	0	14
Q8_2	Intermittent inlet?	2	3	1	1	1	0	0	0	8
Q8_3	Permanent outlet?	0	9	1	1	1	0	0	0	30
Q8_4	Intermittent outlet?	2	3	0	0	0	0	0	0	6
Q9_1	Outlet < one third average width?	2	0	0	0	0	0	0	0	0
Q9_2	Sheet flooding?	18	0	0	0	0	0	0	0	28
Q10_B	Palustrine?	2	0	0	0	0	9	0	0	10
Q10_D	Riverine tidal?	2	9	9	9	9	0	0	0	8
Q10_E	Estuarine?	2	3	3	3	3	3	0	0	18
Q11	Fringe or island wetland?	2	9	1	1	1	0	0	0	10
Q12_AB	Dominant veg: forested and needle-leaved evergreen	1	0	0	0	0	9	0	0	0
Q12_AC	Dominant veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_AD	Dominant veg: forested and needle-leaved deciduous	1	0	0	0	0	0	0	0	0
Q12_AE	Dominant veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0
Q12_BB	Dominant veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_BC	Dominant veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	0	0	0	0
Q12_BD	Dominant veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	0	0	0	0
Q12_BE	Dominant veg: Scrub-shrub and broad-leaved deciduous	1	0	0	1	1	9	0	0	0
Q12_CA	Dominant veg: Aquatic bed and algal	2	9	1	3	9	0	0	0	6
Q12_CB	Dominant veg: Aquatic bed and floating vascular	2	9	1	9	9	0	0	0	10
Q12_CC	Dominant veg: Aquatic bed and rooted vascular	2	9	1	9	9	0	0	0	16
Q12_DA	Dominant veg: Emergent and persistent	6	1	1	1	3	3	0	0	16
Q12_DB	Dominant veg: Emergent and non-persistent	1	3	3	9	9	1	0	0	16
Q13_AA*	Secondary veg: forested and dead	0	0	0	1	0	3	0	0	0
Q13_AB*	Secondary veg: forested and needle-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_AC*	Secondary veg: forested and broad-leaved evergreen	1	0	0	0	0	0	0	0	0

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q13_AD*	Secondary veg: forested and needle-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_AE*	Secondary veg: forested and broad-leaved deciduous	1	0	0	3	1	9	0	0	0
Q13_BA*	Secondary veg: Scrub-shrub and dead	0	0	0	0	0	1	0	0	0
Q13_BB*	Secondary veg: Scrub-shrub and needle-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BC*	Secondary veg: Scrub-shrub and broad-leaved evergreen	1	0	0	0	0	3	0	0	0
Q13_BD*	Secondary veg: Scrub-shrub and needle-leaved deciduous	1	0	0	0	0	3	0	0	0
Q13_BE*	Secondary veg: Scrub-shrub and broad-leaved deciduous	1	0	0	0	0	9	0	0	0
Q13_CA*	Secondary veg: Aquatic bed and algal	2	3	1	3	3	0	0	0	6
Q13_CB*	Secondary veg: Aquatic bed and floating vascular	2	3	1	3	3	0	0	0	10
Q13_CC*	Secondary veg: Aquatic bed and rooted vascular	2	3	1	3	3	0	0	0	16
Q13_DA*	Secondary veg: Emergent and persistent	6	3	3	3	3	3	0	0	16
Q13_DB*	Secondary veg: Emergent and non-persistent	1	1	1	1	3	1	0	0	16
Q14_1	AA on 25 square foot island?	0	0	9	3	9	3	0	0	7
Q14_2	AA on 2 acre island?	0	0	0	0	0	0	0	0	13
Q15_1_A	Vegetation<-->Water = solid form	2	1	1	1	1	3	0	0	7
Q15_1_B	Vegetation<-->Water = intermediate	4	3	3	3	3	3	0	0	20
Q15_1_C	Vegetation<-->Water = checkerboard	4	9	9	9	9	1	0	0	47
Q15_2	Channel flow spreading?	18	9	1	9	9	0	0	0	39
Q16_A	Vegetation class = solid	0	0	1	1	1	1	0	0	0
Q16_B	Vegetation class = intermediate	0	0	1	1	3	3	0	0	0
Q16_C	Vegetation class = mosaic	0	0	1	1	3	9	0	0	0
Q17	Plant form richness	0	0	0	1	3	9	0	0	0
Q18	Upland<-->Wetland edge irregular?	1	3	3	3	3	3	0	0	6
Q19_1_A	Wind shelter?	1	0	9	9	9	0	0	0	13
Q19_1_B	Wind shelter + fetch?	0	0	0	0	0	0	0	0	0
Q19_2	Wave protection?	3	1	3	3	3	0	0	0	9
Q19_3	Upland habitat wind shelter?	0	0	0	0	1	1	0	0	0
Q20_1	Zone B shaded?	0	3	0	0	1	0	0	0	0
Q20_2	Balance sun<-->shade?	0	0	0	0	0	0	0	0	0
Q21_A	Subwatershed dominant land cover: forest and scrub?	0	0	0	0	0	9	0	0	0
Q21_E	Subwatershed dominant land cover: urban lawn/fill?	0	0	0	0	1	0	0	0	0
Q22_1_1	AA contains a Channel?	0	3	1	3	3	0	0	0	10
Q22_1_2	AA contains a Sinuous channel?	2	3	0	0	3	0	0	0	0
Q23	Is the AA Channelized?	0 x 0.8	0	0	0	0	0	0	0	0
Q24_2	Fine mineral soils?	4	0	0	0	0	0	0	0	0
Q24_4	Slow percolation in watershed?	1	0	0	0	0	0	0	0	0
Q25_1	Source of Inorganic sediment in buffer zone?	0 x 0.95	0	0	0	0	0	0	0	0
Q25_2_A	Primary source of sediment = sheetflow?	10	0	0	0	0	0	0	0	20
Q25_2_B*	Primary source of sediment = channel flow?	1	0	0	0	0	0	0	0	0
Q25_3	Wetland stabilizes erosion?	3	0	0	0	0	0	0	0	13
Q26_1	Nutrient source in buffer zone?	3	0	0	0	0	0	0	0	0
Q26_2	Primary source of nutrients = sheetflow?	9	0	0	0	0	0	0	0	0
Q26_3*	Primary source of nutrients = channel flow?	1	0	0	0	0	0	0	0	0
Q27_1	Toxic source in buffer zone?	3	0 x 0.8	x 0.8	x 0.8	x 0.9	0	0	0	x 0.965
Q27_2	Primary source of toxics = sheetflow?	9 x 0.7	0	0	0	0	0	0	0	x 0.934
Q27_3*	Primary source of toxics = channel flow?	1 x 0.5	0	0	0	0	0	0	0	x 0.888
Q28	Has AA been Directly altered?	x 0.8	0	0	0	0	0	0	0	x 0.822
Q29_1	Dense understory edge?	2	3	1	3	3	3	0	0	11
Q29_2	Buffer zone slopes < 5%?	0	0	0	0	0	0	0	0	0
Q30	Is AA subject to frequent Human disturbance?	x 0.95	0	0	0	0	0	0	0	x 0.933
Q31_1	Area of Zone A + Zone B > Zone C?	4	0	0	0	0	3	0	0	7

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

**Table F-1**  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q31_2	Area of Zone B > 10% of AA?	2	0	0	0	0	0	0	0	9
Q31_3	Area of Zone B > Zone A?	1	3	3	3	3	0	0	0	8
Q31_4	Area of submergent in Zone B > open water of Zones B + C	6	9	3	9	9	0	0	0	10
Q31_5	Area of Zone A >= 10% of Zone B and C?	0	0	0	0	1	3	0	0	0
Q31_6_A	emergent in Zone B = 0% of Zones B and C?	0	3	3	3	3	0	0	0	0
Q31_6_B	emergent in Zone B = 1% - 30% of Zones B and C?	2	3	3	3	3	1	0	0	12
Q31_6_C	emergent in Zone B = 31% - 60% of Zones B and C?	6	3	3	3	9	3	0	0	24
Q31_6_D	emergent in Zone B = 61% - 99% of Zones B and C?	18	1	1	1	3	3	0	0	41
Q31_6_E	emergent in Zone B = 100% of Zones B and C or not prese	0	0	0	0	0	3	0	0	0
Q32_A	Spatial Dominant Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q32_B	Spatial Dominant Hydroperiod = intermit exposed nontidal?	0	9	1	3	3	0	0	0	0
Q32_C	Spatial Dominant Hydroperiod = semiperm flooded nontidal	0	3	1	3	3	0	0	0	0
Q32_D	Spatial Dominant Hydroperiod = seasonally flooded nontidal	0	1	1	1	3	3	0	0	0
Q32_E	Spatial Dominant Hydroperiod = saturated nontidal?	0	**	0	1	0	1	0	0	0
Q32_F	Spatial Dominant Hydroperiod = temp flooded nontidal?	0	**	0	0	1	0	0	0	0
Q32_G	Spatial Dominant Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	1	0	0	0
Q32_H	Spatial Dominant Hydroperiod = artificially flooded nontidal?	0	0	9	9	9	0	0	0	0
Q32_I	Spatial Dominant Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q32_J	Spatial Dominant Hydroperiod = irregularly exposed tidal?	0	3	3	3	3	0	0	0	33
Q32_K	Spatial Dominant Hydroperiod = irregularly flooded tidal?	0	1	1	1	3	3	0	0	9
Q33_A*	Permanent Hydroperiod = perm flooded nontidal?	2	9	1	3	9	0	0	0	28
Q33_B*	Permanent Hydroperiod = intermit exposed nontidal?	0	3	1	3	3	0	0	0	0
Q33_C*	Permanent Hydroperiod = semiperm flooded nontidal?	0	3	1	3	3	0	0	0	0
Q33_D*	Permanent Hydroperiod = seasonally flooded nontidal?	0	1	1	1	3	3	0	0	0
Q33_E*	Permanent Hydroperiod = saturated nontidal?	0	**	0	0	0	1	0	0	0
Q33_F*	Permanent Hydroperiod = temp flooded nontidal?	0	**	0	0	0	1	0	0	0
Q33_G*	Permanent Hydroperiod = intermit flooded nontidal?	0	**	0	0	0	0	0	0	0
Q33_H*	Permanent Hydroperiod = artificially flooded nontidal?	0	9	9	9	9	0	0	0	0
Q33_I*	Permanent Hydroperiod = regularly flooded tidal?	0	9	9	9	9	0	0	0	45
Q33_J*	Permanent Hydroperiod = irregularly exposed tidal?	0	9	3	3	3	0	0	0	33
Q33_K*	Permanent Hydroperiod = irregularly flooded tidal?	0	0	1	1	3	3	0	0	9
Q34_1	Local dams?	3	0	0	0	0	3	0	0	15
Q34_2	Upstream impoundment?	0	0	0	0	0	0	0	0	0
Q34_3_1	Flooding due to downslope impoundment?	1	0	0	0	0	0	0	0	8
Q36_1_1	Average width of erect veg in Zones A and B < 20 feet?	0	0	0	0	3	0	0	0	0
Q36_1_2	Average width of erect veg in Zones A and B > 500 feet?	6	0	1	1	0	9	0	0	12
Q36_2_3	Avg width of erect veg (d<0.5 height) in Zone B > 500 feet?	0	0	0	0	0	9	0	0	0
Q37	Open water (d>2ft, w>6ft, l>1000ft)?	0	9	0	3	9	0	0	0	21
Q38_1	Perm flood or seas flood and other < 1 mi	0	9	1	3	3	0	0	0	0
Q38_2	(nontidal with erect veg) or 1 acre hardwood and other < 0.5	0	0	0	3	1	3	0	0	0
Q38_3	(estuarine/marine) or (fw palustrine/lacustrine) and other <	0	0	0	0	0	0	0	0	0
Q38_4	mudflat or tidal scrub-shrub and other adjacent	0	0	0	1	0	0	0	0	0
Q38_5	mudflat > 5 acre or emergent veg > 5 acre and other adja	0	3	9	9	9	0	0	0	0
Q38_6	agr/early succession or evergr forest>10 acres and other <	0	0	0	0	0	0	0	0	0
Q38_7	semiperm or seas flood or perm flood/intermit exposed and	0	0	3	3	9	0	0	0	0
Q39	Special habitat features?	0	0	1	3	3	9	0	0	0
Q40_2	Bottom water > 21 degrees C?	0	0	0	0	0	0	0	0	0
Q41_1	Peak flow velocity < 10 cm/s?	6	3	3	3	3	0	0	0	15
Q41_2	Peak flow velocity > 30 cm/s?	0	0	0	0	0	0	0	0	0
Q42_1_1	>1 acre or 10% of AA: 0<v<1 ft/sec	0	3	3	3	3	0	0	0	0
Q43_A	Dominant Water Depth < 1 inch	0	1	3	1	1	3	0	0	6

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

Table F-1  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Q43_B	1 in < dominant water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q43_C	5 in < dwd < 8 inches	0	9	3	9	9	0	0	0	0
Q43_D	9 in < dominant water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q43_E	21 in < dominant water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q43_F	40 in < dominant water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q43_G	5 feet < dominant water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q43_H	6.5 feet < dominant water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q43_I	dominant water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q44_A*	Secondary Water Depth < 1 inch	0	0	3	1	1	3	0	0	6
Q44_B*	1 in < secondary water depth < 4 inches	0	3	9	9	3	0	0	0	0
Q44_C*	5 in < secondary water depth < 8 inches	0	9	3	9	9	0	0	0	0
Q44_D*	9 in < secondary water depth < 20 inches	0	9	0	9	9	0	0	0	0
Q44_E*	21 in < secondary water depth < 39 inches	0	9	0	0	9	0	0	0	0
Q44_F*	40 in < secondary water depth < 59 inches	0	9	0	0	9	0	0	0	0
Q44_G*	5 feet < secondary water depth < 6.5 feet	0	9	0	0	9	0	0	0	8
Q44_H*	6.5 feet < secondary water depth < 26 feet	0	1	0	0	9	0	0	0	8
Q44_I*	secondary water depth > 26 feet	0	1	0	0	3	0	0	0	8
Q45_B	Substrate: Muck?	2	1	9	9	9	0	0	0	0
Q45_C	Substrate: peat?	6	1	9	9	9	0	0	0	0
Q45_D	Substrate: sand?	1	1	9	9	9	0	0	0	7
Q45_A	Substrate: mud?	2	1	9	9	9	1	0	0	8
Q45_E	Substrate: cobble-gravel?	0	0	0	0	0	0	0	0	13
Q45_F	Substrate: rubble?	0	0	0	0	0	0	0	0	13
Q46_B	Physical Habitat Interspersion = intermediate	0	3	0	1	3	0	0	0	0
Q46_C	Physical Habitat Interspersion = mosaic	1	9	0	3	9	0	0	0	14
Q48_A	Salinity < 0.5 ppt	1	0	0	0	1	1	0	0	0
Q49_1_1	20%-80% Pools?	0	3	0	9	9	0	0	0	0
Q49_1_2	Riffles?	0	0	0	0	0	0	0	0	0
Q49_2	Fish cover?	0	9	1	3	3	0	0	0	18
Q49_3	Carp prevalent in AA ?	0	0	0	3	0	0	0	0	0
Q50	Plants: waterfowl value?	0	3	3	1	9	1	0	0	0
Q51_2	Plant productivity > 1500 g/sq.m/yr	9	0	0	0	0	0	0	0	19
Q52_1	Freshwater Invertebrate Density > 500 sq.ft.	0	9	9	3	9	3	0	0	0
Q53_1	Tidal flat Invertebrate Density = "H"	0	3	9	9	9	1	0	0	0
Q55_1	Suspended Solids < 25 mg/l	0	3	0	1	0	0	0	0	0
Q55_3	Suspended Solids > 1200 mg/l	1	0	0	0	0	0	0	0	0
Q55_4	Suspended Solids > 4000 mg/l	3	0	0	0	0	0	0	0	0
Q61	DO limiting to fish?	0	x 0.7	0	0	0	0	0	0	x 0.934
Q63_1	Floodpeaks: inlet > outlet ?	0	0	0	0	0	0	0	0	0
Q63_2	Surface water inflows > outflows ?	1	0	0	0	0	0	0	0	0
Q64	Total Suspended Solids at inlet > outlet?	1	0	0	0	0	0	0	0	0
Q65_3	Warm Freshwater Fish present?	0	9	0	9	3	1	0	0	0
Q66_1_1	Group 1 Waterfowl Breeding present?	0	0	0	0	9	0	0	0	0
Q66_2_1	Waterfowl Group 1 Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_3	Black Duck Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_5	Mergansers Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_7	Bufflehead/Goldeneye Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q66_2_10	Geese Mig/Wint present?	0	0	0	0	9	0	0	0	0
Q98	Presence of Eleocharis parvula	0	3	9	9	3	0	0	0	0
Q99	Proximity to public transportation	0	0	0	0	0	0	0	x 2	0

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

**Table F-1**  
(continued)

Ques	Summary	Social Significance								
		WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
	Normalize by Dividing by (then multiply by 100)	130	101.65	84.8	112	208	97.2	3	38	394.82
									2.0175	

\* Special instructions for this indicator. See text.

\*\* If this indicator is present, and AA has > 1 in of water (Q43\_B->Q43\_I) then multiply by 0.2. Otherwise, multiply by 0

**Empire Tract Alternative E Responses  
Assessment Area 2EAI(G)F/H - Post Construction 234 Acre  
Tidal Brackish Restoration (with 9/6 revisions)**

Question	Summary	Response
I1	Threatened/Endangered Species?	no
I3	State Listed Cultural Resource?	no
I4	Unusual or rare local type?	no
I6	Substantial previous \$ expenditure?	no
I8	Features sensitive to flooding?	no
I9	Downslope sensitive features in floodplain?	yes
I18	Features in erosion prone areas?	no
I23	Education opportunity?	no
I24	Research resource	yes
I26	Recreation in deficient area?	no
I27	Recreation access point?	no
Q1 3	Freeze-over > one month	no
Q2 1 1	Area < 5 acres?	no
Q2 1 1A	Area < 1 acre	no
Q2 1 2	Area > 40 acres?	yes
Q2 1 2A	Area > 1 acre	yes
Q2 1 3	Area > 200 acres?	yes
Q2 2 1	Forested area < 5 acres?	no
Q2 2 1A	Forested area < 1 acre	no
Q2 2 1B	Forested area > 1 acre, < 40 acres	no
Q2 2 2	Forested area > 40 acres?	no
Q5 1 2	AA > 20% of watershed?	no
Q5 2	Upslope wet depressions > 5% of watershed ?	no
Q5 3	AA outside annual floodplain ?	no
Q7	v < 10 cm/s ?	no
Q8 1	Permanent inlet?	no
Q8 2	Intermittent inlet ?	no
Q8 3	Permanent outlet ?	yes
Q8 4	Intermittent outlet?	no
Q9 1	Outlet < one third average width ?	no
Q9 2	Sheet flooding ?	no
Q10 B	Palustrine ?	no
Q10 D	Riverine tidal ?	no
Q10 E	Estuarine ?	yes
Q11	Fringe or island wetland ?	no
Q12 AB	Dominant veg: forested & needle-leaved evergreen	no
Q12 AC	Dominant veg: forested & broad-leaved evergreen	no
Q12 AD	Dominant veg: forested & needle-leaved deciduous	no
Q12 AE	Dominant veg: forested & broad-leaved deciduous	no
Q12 BB	Dominant veg: Scrub-shrub & needle-leaved evergreen	no
Q12 BC	Dominant veg: Scrub-shrub & broad-leaved evergreen	no
Q12 BD	Dominant veg: Scrub-shrub & needle-leaved deciduous	no
Q12 BE	Dominant veg: Scrub-shrub & broad-leaved deciduous	no
Q12 CA	Dominant veg: Aquatic bed & algal	no
Q12 CB	Dominant veg: Aquatic bed & floating vascular	no
Q12 CC	Dominant veg: Aquatic bed & rooted vascular	no
Q12 DA	Dominant veg: Emergent & persistent	yes
Q12 DB	Dominant veg: Emergent & non-persistent	no
Q13 AA*	Secondary veg: forested & dead	no
Q13 AB*	Secondary veg: forested & needle-leaved evergreen	no
Q13 AC*	Secondary veg: forested & broad-leaved evergreen	no
Q13 AD*	Secondary veg: forested & needle-leaved deciduous	no
Q13 AE*	Secondary veg: forested & broad-leaved deciduous	no
Q13 BA*	Secondary veg: Scrub-shrub & dead	no
Q13 BB*	Secondary veg: Scrub-shrub & needle-leaved evergreen	no
Q13 BC	Secondary veg: Scrub-shrub & broad-leaved evergreen	no
Q13 BD*	Secondary veg: Scrub-shrub & needle-leaved deciduous	no
Q13 BE*	Secondary veg: Scrub-shrub & broad-leaved deciduous	yes
Q13 CA*	Secondary veg: Aquatic bed & algal	no
Q13 CB*	Secondary veg: Aquatic bed & floating vascular	no
Q13 CC*	Secondary veg: Aquatic bed & rooted vascular	no
Q13 DA*	Secondary veg: Emergent & persistent	no
Q13 DB*	Secondary veg: Emergent & non-persistent	no
Q14 1	AA on 25 square foot island?	no
Q14 2	AA on 2 acre island?	no
Q15 1 A	Vegetation <=> Water = solid form	no
Q15 1 B	Vegetation <=> Water = intermediate form	yes
Q15 1 C	Vegetation <=> Water = checkerboard	no
Q15 2	Channel flow spreading?	yes
Q16 A	Vegetation class = solid	no
Q16 B	Vegetation class = intermediate	yes
Q 16 C	Vegetation class = mosaic	no
Q17	Plant form richness	yes
Q18	Upland <=> Wetland edge irregular?	no
Q19 1 A	Wind shelter?	no
Q19 1 B	Wind shelter + fetch?	no
Q19 2	Wave protection?	no
Q19 3	Upland habitat wind shelter?	no
Q20 1	Zone B shaded?	no
Q20 2	Balance sun <=> shade?	no
Q21 A	Subwatershed dominant land cover: forest & scrub?	no
Q21 E	Subwatershed dominant land cover: urban lawn/fill	yes
Q22 1 1	AA contains Channel?	yes
Q22 1 2	AA contains Sinuous channel?	no
Q23	Is the AA Channelized?	yes
Q24 2	Fine mineral soils?	no
Q24 4	Slow percolation in watershed?	yes
Q25 1	Source of Inorganic sediment in buffer zone?	yes
Q25 2 A	Primary source of sediment = sheetflow?	no
Q25 2 B*	Primary source of sediment = channel flow?	yes
Q25 3	Wetland stabilizes erosion?	yes
Q26 1	Nutrient source in buffer zone?	yes
Q26 2	Primary source of nutrients = sheetflow?	no

**Empire Tract Alternative E Responses  
Assessment Area 2EA/GIFH - Post Construction 234 Acre  
Tidal Brackish Restoration (with 9/6 revisions)**

Question	Summary	Response
Q26 3*	Primary source of nutrients = channel flow?	yes
Q27 1	Toxic source in buffer zone?	yes
Q27 2	Primary source of toxics = sheetflow?	no
Q27 3*	Primary source of toxics = channel flow?	yes
Q28	Has AA been Directly altered?	yes
Q29 1	Dense understory edge?	no
Q29 2	Buffer zone slopes < 5%?	no
Q30	Is AA subject to frequent Human disturbances?	yes
Q31 1	Area of Zone A + Zone B > Zone C?	yes
Q31 2	Area of Zone B > 10% of AA?	yes
Q31 3	Area of Zone B > Zone A?	yes
Q31 4	Area of submergent in Zone B > open water of Zones B + C	no
Q31 5	Area of Zone A >=10% of Zone B & C?	no
Q31 6 A	Emergent in Zone B = 0% of Zones B & C?	no
Q31 6 B	Emergent in Zone B = 1% - 30% of Zones B & C?	no
Q31 6 C	Emergent in Zone B = 31% - 60% of Zones B & C?	no
Q31 6 D	Emergent in Zone B = 61% - 99% of Zones B & C?	no
Q31 6 E	Emergent in Zone B = 100% of Zones B & C or not present	yes
Q32 A	Spatial Dominant Hydroperiod = perm flooded nontidal?	no
Q32 B	Spatial Dominant Hydroperiod = intermit exposed nontidal?	no
Q32 C	Spatial Dominant Hydroperiod = semiperm flooded nontidal?	no
Q32 D	Spatial Dominant Hydroperiod = seasonally flooded nontidal?	no
Q32 E	Spatial Dominant Hydroperiod = saturated nontidal?	no
Q32 F	Spatial Dominant Hydroperiod = temp flooded nontidal?	no
Q32 G	Spatial Dominant Hydroperiod = intermit flooded nontidal?	no
Q32 H	Spatial Dominant Hydroperiod = artificially flooded nontidal?	no
Q32 I	Spatial Dominant Hydroperiod = regularly flooded tidal?	yes
Q32 J	Spatial Dominant Hydroperiod = irregularly exposed tidal?	no
Q32 K	Spatial Dominant Hydroperiod = irregularly flooded tidal?	no
Q33 A*	Permanent Hydroperiod = perm flooded nontidal?	no
Q33 B*	Permanent Hydroperiod = intermit exposed nontidal?	no
Q33 C*	Permanent Hydroperiod = semiperm flooded nontidal?	no
Q33 D*	Permanent Hydroperiod = seasonally flooded nontidal?	no
Q33 E*	Permanent Hydroperiod = saturated nontidal?	no
Q33 F*	Permanent Hydroperiod = temp flooded nontidal?	no
Q33 G*	Permanent Hydroperiod = intermit flooded nontidal?	no
Q33 H*	Permanent Hydroperiod = artificially flooded nontidal?	no
Q33 I*	Permanent Hydroperiod = regularly flooded tidal?	no
Q33 J*	Permanent Hydroperiod = irregularly exposed tidal?	yes
Q33 K*	Permanent Hydroperiod = irregularly flooded tidal?	no
Q34 1	Local dams?	no
Q34 2	Upstream impoundment?	no
Q34 3 1	Flooding due to downslope impoundment?	no
Q36 1 1	Average width of erect veg in Zone A & B < 20 feet?	no
Q36 1 2	Average width of erect veg in Zones A & B > 500 feet?	no
Q36 2 3	Avg width of erect veg (d<0.5 height) in Zone B > 500 feet?	no
Q37	Open water (d.2ft,w.6ft,>1000ft)?	no
Q38 1	Perm flood or seasonally flood & other <1 mi	no
Q38 2	(nontidal with erect veg) or 1 acre hardwood & other <0.5	no
Q38 3	(estuarine/marine) or (fw palustrine/laucustrine) & other <	yes
Q38 4	Mudflat or tidal scrub-shrub & other adjacent	yes
Q38 5	Mudflat > 5 acre or emergent veg >5 acre & other adjacent	yes
Q38 6	Agri/early succession or evergr forest>10 acres & other <	no
Q38 7	Semiperm or seas flooded or perm flood/intermit exposed &	yes
Q39	Special habitat features?	yes
Q40 2	Bottom water > 21 degrees C?	no
Q41 1	Peak flow velocity < 10 cm/s?	no
Q41 2	Peak flow velocity > 30 cm/s?	yes
Q42 1 1	>1 acre or 10% of AA: 0<v<1 ft/sec	yes
Q43 A	Dominant Water Depth < 1 inch	no
Q43 B	1 in < dominant water depth < 4 inches	no
Q43 C	5 in < dwd < 8 inches	no
Q43 D	9 in dominant water depth < 20 inches	no
Q43 E	21 in dominant water depth < 39 inches	no
Q43 F	40 in < dominant water depth < 59 inches	yes
Q43 G	5 ft < dominant water depth < 6.5 feet	no
Q43 H	6.5 feet < dominant water depth < 26 feet	no
Q43 I	Dominant water depth > 26 feet	no
Q44 A*	Secondary Water Depth < 1 inch	no
Q44 B*	1 in < secondary water depth < 4 inches	yes
Q44 C*	5 in < secondary water depth < 8 inches	yes
Q44 D*	9 in < secondary water depth < 20 inches	yes
Q44 E*	21 in < secondary water depth < 39 inches	yes
Q44 F*	40 in < secondary water depth < 59 inches	yes
Q44 G*	5 feet < secondary water depth < 6.5 feet	yes
Q44 H*	6.5 feet < secondary water depth < 26 feet	no
Q44 I*	Secondary water depth > 26 feet	no
Q45 B	Substrate: Muck?	no
Q45 C	Substrate: peat?	yes
Q45 D	Substrate: sand?	no
Q45 A	Substrate: mud?	no
Q45 E	Substrate: cobble-gravel?	no
Q45 F	Substrate: rubble?	no
Q46 B	Physical Habitat Interspersion = intermediate	yes
Q46 C	Physical Habitat Interspersion = mosaic	no
Q48 A	Salinity < 0.5 ppt	no
Q49 1 1	20%-80% Pools?	no
Q49 1 2	Riffles?	no
Q49 2	Fish cover?	yes
Q49 3	Carp prevalent in AA?	no
Q50	Plants: waterfowl value?	yes
Q51 2	Plant productivity > 1500 g/sq m/yr	yes
Q52 1	Freshwater Invertebrate Density > 500 sq. ft.	no
Q53 1	Tidal flat Invertebrate density = "H"	yes
Q55 1	Suspended Solids < 25 mg/l	yes
Q55 3	Suspended Solids > 1200 mg/l	no

**Empire Tract Alternative E Responses**  
**Assessment Area 2EA\GFH - Post Construction 234 Acre**  
**Tidal Brackish Restoration (with 9/6 revisions)**

Question	Summary	Response
Q65_4	Suspended Solids > 4000 mg/l	no
Q61	DO limit to fish ?	no
Q63_1	Floodpeaks: inlet > outlet ?	no
Q63_2	Surface water inflows > outflows ?	no
Q64	Total Suspended Solids at inlet > outlet ?	no
Q65_3	Warm Freshwater Fish present ?	no
Q66_1_1	Group 1 Waterfowl Breeding present ?	yes
Q66_2_1	Waterfowl Group 1 Mig/Wint present ?	yes
Q66_2_3	Black Duck Mig/Wint present ?	yes
Q66_2_5	Mergansers Mig/Wint present ?	yes
Q66_2_7	Bufflehead/Goldeneye Mig/Wint present ?	yes
Q66_2_10	Geese Mig/Wint present ?	yes
Q68	Presence of <i>Eleocharis parvula</i>	yes
Q69	Proximity to public transportation	yes

	WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Attribute Sum for Social Significance							0.333333	0.421053	0
Attribute Sums	62.32	49.4	72.8	97.6	169.6	58.5		0.754386	
Normalized Sum	0.479384615	0.485981	0.858491	0.871429	0.815385	0.601852		0.373921	
Attribute Totals	47.93846154	48.59813	85.84906	87.14286	81.53846	60.18519		37.39212	

**Empire Tract Alternative E Responses**  
**Assessment Area 2EB Non-tidal Enhancement (130 acres)**  
**(with 9/6 revisions)**

Question	Summary	Response
I1	Threatened/Endangered Species?	no
I3	State Listed Cultural Resource?	no
I4	Unusual or rare local type?	no
I6	Substantial previous \$ expenditure?	yes
I8	Features sensitive to flooding?	yes
I9	Downslope sensitive features in floodplain?	no
I18	Features in erosion prone areas?	no
I23	Education opportunity?	yes
I24	Research resource	yes
I26	Recreation in deficient area?	yes
I27	Recreation access point?	no
Q1 3	Freeze-over > one month	yes
Q2 1 1	Area <5 acres?	no
Q2 1 1A	Area < 1 acre	no
Q2 1 2	Area > 40 acres?	yes
Q2 1 2A	Area > 1 acre	yes
Q2 1 3	Area >200 acres?	no
Q2 2 1	Forested area < 5 acres?	no
Q2 2 1A	Forested area < 1 acre	yes
Q2 2 1B	Forested area >1 acre, < 40 acres	no
Q2 2 2	Forested area > 40 acres?	no
Q5 1 2	AA > 20% of watershed?	yes
Q5 2	Upslope wet depressions > 5% of watershed ?	no
Q5 3	AA outside annual floodplain ?	no
Q7	v < 10 cm/s ?	yes
Q8 1	Permanent inlet?	no
Q8 2	Intermittent inlet ?	yes
Q8 3	Permanent outlet ?	yes
Q8 4	Intermittent outlet?	no
Q9 1	Outlet < one third average width ?	yes
Q9 2	Sheet flooding ?	yes
Q10 B	Palustrine ?	yes
Q10 D	Riverine tidal ?	no
Q10 E	Estuarine ?	no
Q11	Fringe or island wetland ?	no
Q12 AB	Dominant veg: forested & needle-leaved evergreen	no
Q12 AC	Dominant veg: forested & broad-leaved evergreen	no
Q12 AD	Dominant veg: forested & needle-leaved deciduous	no
Q12 AE	Dominant veg: forested & broad-leaved deciduous	no
Q12 BB	Dominant veg: Scrub-shrub & needle-leaved evergreen	no
Q12 BC	Dominant veg: Scrub-shrub & broad-leaved evergreen	no
Q12 BD	Dominant veg: Scrub-shrub & needle-leaved deciduous	no
Q12 BE	Dominant veg: Scrub-shrub & broad-leaved deciduous	no
Q12 CA	Dominant veg: Aquatic bed & algal	no
Q12 CB	Dominant veg: Aquatic bed & floating vascular	no
Q12 CC	Dominant veg: Aquatic bed & rooted vascular	no
Q12 DA	Dominant veg: Emergent & persistent	yes
Q12 DB	Dominant veg: Emergent & non-persistent	no
Q13 AA*	Secondary veg: forested & dead	no
Q13 AB*	Secondary veg: forested & needle-leaved evergreen	no
Q13 AC*	Secondary veg: forested & broad-leaved evergreen	no
Q13 AD*	Secondary veg: forested & needle-leaved deciduous	no
Q13 AE*	Secondary veg: forested & broad-leaved deciduous	no
Q13 BA*	Secondary veg: Scrub-shrub & dead	no
Q13 BB*	Secondary veg: Scrub-shrub & needle-leaved evergreen	no
Q13 BC	Secondary veg: Scrub-shrub & broad-leaved evergreen	no
Q13 BD*	Secondary veg: Scrub-shrub & needle-leaved deciduous	no
Q13 BE*	Secondary veg: Scrub-shrub & broad-leaved deciduous	yes
Q13 CA*	Secondary veg: Aquatic bed & algal	yes
Q13 CB*	Secondary veg: Aquatic bed & floating vascular	no
Q13 CC*	Secondary veg: Aquatic bed & rooted vascular	no
Q13 DA*	Secondary veg: Emergent & persistent	no
Q13 DB*	Secondary veg: Emergent & non-persistent	no
Q14 1	AA on 25 square foot island?	yes
Q14 2	AA on 2 acre island?	no
Q15 1 A	Vegetation <--> Water = solid form	no
Q15 1 B	Vegetation <--> Water = intermediate form	yes
Q15 1 C	Vegetation <--> Water = checkerboard	no
Q15 2	Channel flow spreading?	yes
Q16 A	Vegetation class = solid	no
Q16 B	Vegetation class = intermediate	yes
Q16 C	Vegetation class = mosaic	no
Q17	Plant form richness	yes
Q18	Upland <--> Wetland edge irregular?	yes
Q19 1 A	Wind shelter?	yes
Q19 1 B	Wind shelter + fetch?	no
Q19 2	Wave protection?	no
Q19 3	Upland habitat wind shelter?	no
Q20 1	Zone B shaded?	no
Q20 2	Balance sun <--> shade?	no
Q21 A	Subwatershed dominant land cover: forest & scrub?	no
Q21 E	Subwatershed dominant land cover: urban lawn/fill	yes
Q22 1 1	AA contains Channel?	yes
Q22 1 2	AA contains Sinuous channel?	yes
Q23	Is the AA Channelized?	yes
Q24 2	Fine mineral soils?	no
Q24 4	Slow percolation in watershed?	yes

**Empire Tract Alternative E Responses**  
**Assessment Area 2EB Non-tidal Enhancement (130 acres)**  
**(with 9/6 revisions)**

Question	Summary	Response
Q25 1	Source of inorganic sediment in buffer zone?	yes
Q25 2 A	Primary source of sediment = sheetflow?	no
Q25 2 B*	Primary source of sediment = channel flow?	yes
Q25 3	Wetland stabilizes erosion?	yes
Q26 1	Nutrient source in buffer zone?	yes
Q26 2	Primary source of nutrients = sheetflow?	no
Q26 3*	Primary source of nutrients = channel flow?	yes
Q27 1	Toxic source in buffer zone?	yes
Q27 2	Primary source of toxics = sheetflow?	no
Q27 3*	Primary source of toxics = channel flow?	yes
Q28	Has AA been Directly altered?	yes
Q29 1	Dense understory edge?	yes
Q29 2	Buffer zone slopes < 5%?	yes
Q30	Is AA subject to frequent Human disturbances?	yes
Q31 1	Area of Zone A + Zone B > Zone C?	yes
Q31 2	Area of Zone B > 10% of AA?	yes
Q31 3	Area of Zone B > Zone A?	no
Q31 4	Area of submergent in Zone B > open water of Zones B + C	no
Q31 5	Area of Zone A >=10% of Zone B & C?	yes
Q31 6 A	Emergent in Zone B = 0% of Zones B & C?	no
Q31 6 B	Emergent in Zone B = 1% - 30% of Zones B & C?	no
Q31 6 C	Emergent in Zone B = 31% - 60% of Zones B & C?	no
Q31 6 D	Emergent in Zone B = 61% - 99% of Zones B & C?	yes
Q31 6 E	Emergent in Zone B = 100% of Zones B & C or not present	no
Q32 A	Spatial Dominant Hydroperiod = perm flooded nontidal?	no
Q32 B	Spatial Dominant Hydroperiod = intermit exposed nontidal?	no
Q32 C	Spatial Dominant Hydroperiod = semiperm flooded nontidal?	no
Q32 D	Spatial Dominant Hydroperiod = seasonally flooded nontidal?	no
Q32 E	Spatial Dominant Hydroperiod = saturated nontidal?	no
Q32 F	Spatial Dominant Hydroperiod = temp flooded nontidal?	no
Q32 G	Spatial Dominant Hydroperiod = intermit flooded nontidal?	no
Q32 H	Spatial Dominant Hydroperiod = artificially flooded nontidal?	yes
Q32 I	Spatial Dominant Hydroperiod = regularly flooded tidal?	no
Q32 J	Spatial Dominant Hydroperiod = irregularly exposed tidal?	no
Q32 K	Spatial Dominant Hydroperiod = irregularly flooded tidal?	no
Q33 A*	Permanent Hydroperiod = perm flooded nontidal?	no
Q33 B*	Permanent Hydroperiod = intermit exposed nontidal?	no
Q33 C*	Permanent Hydroperiod = semiperm flooded nontidal?	no
Q33 D*	Permanent Hydroperiod = seasonally flooded nontidal?	no
Q33 E*	Permanent Hydroperiod = saturated nontidal?	no
Q33 F*	Permanent Hydroperiod = temp flooded nontidal?	no
Q33 G*	Permanent Hydroperiod = intermit flooded nontidal?	no
Q33 H*	Permanent Hydroperiod = artificially flooded nontidal?	yes
Q33 I*	Permanent Hydroperiod = regularly flooded tidal?	no
Q33 J*	Permanent Hydroperiod = irregularly exposed tidal?	no
Q33 K*	Permanent Hydroperiod = irregularly flooded tidal?	no
Q34 1	Local dams?	yes
Q34 2	Upstream impoundment?	no
Q34 3 1	Flooding due to downslope impoundment?	yes
Q36 1 1	Average width of erect veg in Zone A & B < 20 feet?	no
Q36 1 2	Average width of erect veg in Zones A & B > 500 feet?	yes
Q36 2 3	Avg width of erect veg (d<0.5 height) in Zone B > 500 feet?	yes
Q37	Open water (d.2ft,w.6ft,>1000ft)?	yes
Q38 1	Perm flood or seasonally flood & other <1 mi	yes
Q38 2	(nontidal with erect veg) or 1 acre hardwood & other <0.5	no
Q38 3	(estuarine/marine) or (fw palustrine/laucustrine) & other <	yes
Q38 4	Mudflat or tidal scrub-shrub & other adjacent	no
Q38 5	Mudflat > 5 acre or emergent veg >5 acres & other adjacent	yes
Q38 6	Agri/early succession or evergr forest>10 acres & other <	no
Q38 7	Semiperm or seas flooded or perm flood/intermit exposed &	yes
Q39	Special habitat features?	no
Q40 2	Bottom water > 21 degrees C?	no
Q41 1	Peak flow velocity < 10 cm/s?	yes
Q41 2	Peak flow velocity > 30 cm/s?	no
Q42 1 1	>1 acre or 10% of AA: 0<v<1 ft/sec	yes
Q43 A	Dominant Water Depth < 1 inch	no
Q43 B	1 in < dominant water depth < 4 inches	yes
Q43 C	5 in < dwd < 8 inches	no
Q43 D	9 in dominant water depth < 20 inches	no
Q43 E	21 in dominant water depth < 39 inches	no
Q43 F	40 in < dominant water depth < 59 inches	no
Q43 G	5 ft < dominant water depth < 6.5 feet	no
Q43 H	6.5 feet < dominant water depth < 26 feet	no
Q43 I	Dominant water depth > 26 feet	no
Q44 A*	Secondary Water Depth < 1 inch	yes
Q44 B*	1 in < secondary water depth < 4 inches	yes
Q44 C*	5 in < secondary water depth < 8 inches	yes
Q44 D*	9 in < secondary water depth < 20 inches	yes
Q44 E*	21 in < secondary water depth < 39 inches	yes
Q44 F*	40 in < secondary water depth < 59 inches	no
Q44 G*	5 feet < secondary water depth < 6.5 feet	no
Q44 H*	6.5 feet < secondary water depth < 26 feet	no
Q44 I*	Secondary water depth > 26 feet	no
Q45 B	Substrate: Muck?	no
Q45 C	Substrate: peat?	yes
Q45 D	Substrate: sand?	no
Q45 A	Substrate: mud?	no

**Empire Tract Alternative E Responses**  
**Assessment Area 2EB Non-tidal Enhancement (130 acres)**  
**(with 8/8 revisions)**

Question	Summary	Response
Q45 E	Substrate: cobble-gravel ?	no
Q45 F	Substrate: rubble ?	no
Q46 B	Physical Habitat Interspersion = intermediate	yes
Q46 C	Physical Habitat Interspersion = mosaic	no
Q48 A	Salinity < 0.5 ppt	no
Q49 1 1	20%-60% Pools ?	yes
Q49 1 2	Riffles ?	no
Q49 2	Fish cover ?	yes
Q49 3	Carp prevalent in AA ?	yes
Q50	Plants: waterfowl value ?	yes
Q51 2	Plant productivity > 1500 g/sq.m/yr	yes
Q52 1	Freshwater Invertebrate Density > 500 sq. ft.	no
Q53 1	Tidal flat Invertebrate density = "H"	no
Q55 1	Suspended Solids < 25 mg/l	yes
Q55 3	Suspended Solids > 1200 mg/l	no
Q55 4	Suspended Solids > 4000 mg/l	no
Q61	DO limit to fish ?	no
Q63 1	Floodpeaks: inlet > outlet ?	yes
Q63 2	Surface water inflows > outflows ?	yes
Q64	Total Suspended Solids at inlet > outlet ?	yes
Q65 3	Warm Freshwater Fish present ?	yes
Q66 1 1	Group 1 Waterfowl Breeding present ?	yes
Q66 2 1	Waterfowl Group 1 Mig/Wint present ?	yes
Q66 2 3	Black Duck Mig/Wint present ?	yes
Q66 2 5	Mergansers Mig/Wint present ?	yes
Q66 2 7	Bufflehead/Goldeneye Mig/Wint present ?	no
Q66 2 10	Geese Mig/Wint present ?	yes
Q68	Presence of <i>Eleocharis parvula</i>	no
Q69	Proximity to public transportation	yes

	WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Attribute Sum for Social Significance							0.333333	0.315789	0
Attribute Sums	111.72	49.4	74.4	114.4	176.8	81		0.649123	
Normalized Sum	0.859384615	0.485981308	0.877358491	1.021429	0.85	0.833333		0.321746	
Attribute Totals	85.93846154	48.59813084	87.7358491	102.1429	85	83.33333		32.17461	

**Empire Tract Alternative E Responses**  
**Assessment Area 2T (Tidal restoration) (42 acres)**  
**(with 9/6 revisions)**

Question	Summary	Response
I1	Threatened/Endangered Species?	no
I3	State Listed Cultural Resource?	no
I4	Unusual or rare local type?	no
I6	Substantial previous \$ expenditure?	yes
I8	Features sensitive to flooding?	no
I9	Downslope sensitive features in floodplain?	yes
I18	Features in erosion prone areas?	no
I23	Education opportunity?	no
I24	Research resource	yes
I26	Recreation in deficient area?	no
I27	Recreation access point?	no
Q1 3	Freeze-over > one month	no
Q2 1 1	Area <5 acres?	no
Q2 1 1A	Area < 1 acre	no
Q2 1 2	Area > 40 acres?	yes
Q2 1 2A	Area > 1 acre	yes
Q2 1 3	Area >200 acres?	no
Q2 2 1	Forested area < 5 acres?	no
Q2 2 1A	Forested area < 1 acre	no
Q2 2 1B	Forested area >1 acre, < 40 acres	no
Q2 2 2	Forested area > 40 acres?	no
Q5 1 2	AA > 20% of watershed?	no
Q5 2	Upslope wet depressions > 5% of watershed ?	no
Q5 3	AA outside annual floodplain ?	no
Q7	v < 10 cm/s ?	no
Q8 1	Permanent inlet?	yes
Q8 2	Intermittent inlet ?	no
Q8 3	Permanent outlet ?	yes
Q8 4	Intermittent outlet?	no
Q9 1	Outlet < one third average width ?	no
Q9 2	Sheet flooding ?	yes
Q10 B	Palustrine ?	no
Q10 D	Riverine tidal ?	no
Q10 E	Estuarine ?	yes
Q11	Fringe or island wetland ? -	no
Q12 AB	Dominant veg: forested & needle-leaved evergreen	no
Q12 AC	Dominant veg: forested & broad-leaved evergreen	no
Q12 AD	Dominant veg: forested & needle-leaved deciduous	no
Q12 AE	Dominant veg: forested & broad-leaved deciduous	no
Q12 BB	Dominant veg: Scrub-shrub & needle-leaved evergreen	no
Q12 BC	Dominant veg: Scrub-shrub & broad-leaved evergreen	no
Q12 BD	Dominant veg: Scrub-shrub & needle-leaved deciduous	no
Q12 BE	Dominant veg: Scrub-shrub & broad-leaved deciduous	no
Q12 CA	Dominant veg: Aquatic bed & algal	no
Q12 CB	Dominant veg: Aquatic bed & floating vascular	no
Q12 CC	Dominant veg: Aquatic bed & rooted vascular	no
Q12 DA	Dominant veg: Emergent & persistent	yes
Q12 DB	Dominant veg: Emergent & non-persistent	no
Q13 AA*	Secondary veg: forested & dead	no
Q13 AB*	Secondary veg: forested & needle-leaved evergreen	no
Q13 AC*	Secondary veg: forested & broad-leaved evergreen	no
Q13 AD*	Secondary veg: forested & needle-leaved deciduous	no
Q13 AE*	Secondary veg: forested & broad-leaved deciduous	no
Q13 BA*	Secondary veg: Scrub-shrub & dead	no
Q13 BB*	Secondary veg: Scrub-shrub & needle-leaved evergreen	no
Q13 BC	Secondary veg: Scrub-shrub & broad-leaved evergreen	no
Q13 BD*	Secondary veg: Scrub-shrub & needle-leaved deciduous	no
Q13 BE*	Secondary veg: Scrub-shrub & broad-leaved deciduous	yes
Q13 CA*	Secondary veg: Aquatic bed & algal	no
Q13 CB*	Secondary veg: Aquatic bed & floating vascular	no
Q13 CC*	Secondary veg: Aquatic bed & rooted vascular	no
Q13 DA*	Secondary veg: Emergent & persistent	no
Q13 DB*	Secondary veg: Emergent & non-persistent	no
Q14 1	AA on 25 square foot island?	yes
Q14 2	AA on 2 acre island?	no
Q15 1 A	Vegetation <-> Water = solid form	no
Q15 1 B	Vegetation <-> Water = intermediate form	yes
Q15 1 C	Vegetation <-> Water = checkerboard	no
Q15 2	Channel flow spreading?	yes
Q16 A	Vegetation class = solid	no
Q16 B	Vegetation class = intermediate	yes
Q 16 C	Vegetation class = mosaic	no
Q17	Plant form richness	yes
Q18	Upland <-> Wetland edge irregular?	no
Q19 1 A	Wind shelter?	yes
Q19 1 B	Wind shelter + fetch?	no
Q19 2	Wave protection?	yes
Q19 3	Upland habitat wind shelter?	no
Q20 1	Zone B shaded?	no
Q20 2	Balance sun <-> shade?	no
Q21 A	Subwatershed dominant land cover: forest & scrub?	no
Q21 E	Subwatershed dominant land cover: urban lawn/fill	yes
Q22 1 1	AA contains Channel?	yes
Q22 1 2	AA contains Sinuous channel?	no

**Empire Tract Alternative E Responses**  
**Assessment Area 2T (Tidal restoration) (42 acres)**  
**(with 8/6 revisions)**

Question	Summary	Response
Q23	Is the AA Channelized?	yes
Q24 2	Fine mineral soils?	no
Q24 4	Slow percolation in watershed?	yes
Q25 1	Source of inorganic sediment in buffer zone?	yes
Q25 2 A	Primary source of sediment = sheetflow?	no
Q25 2 B*	Primary source of sediment = channel flow?	yes
Q25 3	Wetland stabilizes erosion?	yes
Q26 1	Nutrient source in buffer zone?	no
Q26 2	Primary source of nutrients = sheetflow?	no
Q26 3*	Primary source of nutrients = channel flow?	yes
Q27 1	Toxic source in buffer zone?	no
Q27 2	Primary source of toxics = sheetflow?	no
Q27 3*	Primary source of toxics = channel flow?	yes
Q28	Has AA been Directly altered?	yes
Q29 1	Dense understory edge?	yes
Q29 2	Buffer zone slopes < 5%?	no
Q30	Is AA subject to frequent Human disturbances?	yes
Q31 1	Area of Zone A + Zone B > Zone C?	yes
Q31 2	Area of Zone B > 10% of AA ?	yes
Q31 3	Area of Zone B > Zone A ?	yes
Q31 4	Area of submergent in Zone B > open water of Zones B + C	yes
Q31 5	Area of Zone A >=10% of Zone B & C ?	no
Q31 6 A	Emergent in Zone B = 0% of Zones B & C ?	no
Q31 6 B	Emergent in Zone B = 1% - 30% of Zones B & C ?	no
Q31 6 C	Emergent in Zone B = 31% - 60% of Zones B & C ?	yes
Q31 6 D	Emergent in Zone B = 61% - 99% of Zones B & C ?	no
Q31 A F	Emergent in Zone B = 100% of Zones B & C or not present	no
Q32 A	Spatial Dominant Hydroperiod = perm flooded nontidal ?	no
Q32 B	Spatial Dominant Hydroperiod = intermit exposed nontidal ?	no
Q32 C	Spatial Dominant Hydroperiod = semiperm flooded nontidal ?	no
Q32 D	Spatial Dominant Hydroperiod = seasonally flooded nontidal ?	no
Q32 E	Spatial Dominant Hydroperiod = saturated nontidal ?	no
Q32 F	Spatial Dominant Hydroperiod = temp flooded nontidal ?	no
Q32 G	Spatial Dominant Hydroperiod = intermit flooded nontidal ?	no
Q32 H	Spatial Dominant Hydroperiod = artificially flooded nontidal ?	no
Q32 I	Spatial Dominant Hydroperiod = regularly flooded tidal ?	no
Q32 J	Spatial Dominant Hydroperiod = irregularly exposed tidal ?	yes
Q32 K	Spatial Dominant Hydroperiod = irregularly flooded tidal ?	no
Q33 A*	Permanent Hydroperiod = perm flooded nontidal ?	no
Q33 B*	Permanent Hydroperiod = intermit exposed nontidal ?	no
Q33 C*	Permanent Hydroperiod = semiperm flooded nontidal ?	no
Q33 D*	Permanent Hydroperiod = seasonally flooded nontidal ?	no
Q33 E*	Permanent Hydroperiod = saturated nontidal ?	no
Q33 F*	Permanent Hydroperiod = temp flooded nontidal ?	no
Q33 G*	Permanent Hydroperiod = intermit flooded nontidal ?	no
Q33 H*	Permanent Hydroperiod = artificially flooded nontidal ?	no
Q33 I*	Permanent Hydroperiod = regularly flooded tidal ?	no
Q33 J*	Permanent Hydroperiod = irregularly exposed tidal ?	yes
Q33 K*	Permanent Hydroperiod = irregularly flooded tidal ?	no
Q34 1	Local dams ?	no
Q34 2	Upstream impoundment ?	no
Q34 3 1	Flooding due to downslope impoundment ?	no
Q36 1 1	Average width of erect veg in Zone A & B < 20 feet ?	no
Q36 1 2	Average width of erect veg in Zones A & B > 500 feet ?	yes
Q36 2 3	Avg width of erect veg (d<0.5 height) in Zone B > 500 feet ?	yes
Q37	Open water (d.2ft,w.6ft,l>1000ft) ?	no
Q38 1	Perm flood or seasonally flood & other <1 mi	yes
Q38 2	(nontidal with erect veg) or 1 acre hardwood & other <0.5	no
Q38 3	(estuarine/marine) or (fw palustrine/laucustrine) & other <	yes
Q38 4	Mudflat or tidal scrub-shrub & other adjacent	yes
Q38 5	Mudflat > 5 acre or emergent veg >5 acre & other adjacent	yes
Q38 6	Aggr/early succession or evergr forest>10 acres & other <	no
Q38 7	Semiperm or seas flooded or perm flood/intermit exposed &	yes
Q39	Special habitat features ?	yes
Q40 2	Bottom water > 21 degrees C ?	no
Q41 1	Peak flow velocity < 10 cm/s ?	no
Q41 2	Peak flow velocity > 30 cm/s ?	yes
Q42 1 1	>1 acre or 10% of AA: 0<v<1 ft/sec	yes
Q43 A	Dominant Water Depth < 1 inch	no
Q43 B	1 in < dominant water depth < 4 inches	no
Q43 C	5 in < dwd < 8 inches	no
Q43 D	9 in dominant water depth < 20 inches	no
Q43 E	21 in dominant water depth < 39 inches	no
Q43 F	40 in < dominant water depth < 59 inches	yes
Q43 G	5 ft < dominant water depth < 6.5 feet	no
Q43 H	6.5 feet < dominant water depth < 26 feet	no
Q43 I	Dominant water depth > 26 feet	no
Q44 A*	Secondary Water Depth < 1 inch	yes
Q44 B*	1 in < secondary water depth < 4 inches	yes
Q44 C*	5 in < secondary water depth < 8 inches	no
Q44 D*	9 in < secondary water depth < 20 inches	yes
Q44 E*	21 in < secondary water depth < 39 inches	yes
Q44 F*	40 in < secondary water depth < 59 inches	yes
Q44 G*	5 feet < secondary water depth < 6.5 feet	no

**Empire Tract Alternative E Responses  
Assessment Area 2T (Tidal restoration) (42 acres)  
(with 9/6 revisions)**

Question	Summary	Response
Q44 H*	6.5 feet < secondary water depth < 26 feet	no
Q44 J*	Secondary water depth > 26 feet	yes
Q45 B	Substrate: Muck?	no
Q45 C	Substrate: peat ?	yes
Q45 D	Substrate: sand ?	no
Q45 A	Substrate: mud ?	no
Q45 E	Substrate: cobble-gravel ?	no
Q45 F	Substrate: rubble ?	no
Q46 B	Physical Habitat Interspersion = intermediate	yes
Q46 C	Physical Habitat Interspersion = mosaic	no
Q48 A	Salinity < 0.5 ppt	no
Q49 1 1	20%-80% Pools ?	yes
Q49 1 2	Riffles ?	no
Q49 2	Fish cover ?	yes
Q49 3	Carp prevalent in AA ?	no
Q50	Plants: waterfowl value ?	yes
Q51 2	Plant productivity > 1500 g/sq.m/yr	yes
Q52 1	Freshwater Invertebrate Density > 500 sq. ft.	no
Q53 1	Tidal flat Invertebrate density = "H"	no
Q55 1	Suspended Solids < 25 mg/l	yes
Q55 3	Suspended Solids > 1200 mg/l	no
Q55 4	Suspended Solids > 4000 mg/l	no
Q61	DO limit to fish ?	yes
Q63 1	Floodpeaks: inlet > outlet ?	no
Q63 2	Surface water inflows > outflows ?	no
Q64	Total Suspended Solids at inlet > outlet ?	no
Q65 3	Warm Freshwater Fish present ?	no
Q66 1 1	Group 1 Waterfowl Breeding present ?	yes
Q66 2 1	Waterfowl Group 1 Mig/Wint present ?	yes
Q66 2 3	Black Duck Mig/Wint present ?	yes
Q66 2 5	Mergansers Mig/Wint present ?	yes
Q66 2 7	Bufflehead/Goldeneye Mig/Wint present ?	no
Q66 2 10	Geese Mig/Wint present ?	yes
Q98	Presence of <i>Eleocharis parvula</i>	yes
Q99	Proximity to public transportation	yes

	WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Attribute Sum for Social Significance							0.333333	0.473684	0
Attribute Sums	82.84	38.836	110	149	235	91		0.807018	
Normalized Sum	0.637230769	0.382056	1.29717	1.330357	1.129808	0.936214		0.400009	
Attribute Totals	63.72307692	38.20561	129.717	133.0357	112.9808	93.6214		40.00087	

# Assessment Area 2T (Tidal restoration) (42 acres) - (with 9/6 revisions)

Question	Summary	Response
I1	Threatened/Endangered Species?	no
I3	State Listed Cultural Resource?	no
I4	Unusual or rare local type?	no
I6	Substantial previous \$ expenditure?	yes
I8	Features sensitive to flooding?	no
I9	Downslope sensitive features in floodplain?	yes
I18	Features in erosion prone areas?	no
I23	Education opportunity?	no
I24	Research resource	yes
I26	Recreation in deficient area?	no
I27	Recreation access point?	no
Q1 3	Freeze-over > one month	no
Q2 1 1	Area <5 acres?	no
Q2 1 1A	Area < 1 acre	no
Q2 1 2	Area > 40 acres?	yes
Q2 1 2A	Area > 1 acre	yes
Q2 1 3	Area >200 acres?	no
Q2 2 1	Forested area < 5 acres?	no
Q2 2 1A	Forested area < 1 acre	no
Q2 2 1B	Forested area >1 acre, < 40 acres	no
Q2 2 2	Forested area > 40 acres?	no
Q5 1 2	AA > 20% of watershed?	no
Q5 2	Upslope wet depressions > 5% of watershed ?	no
Q5 3	AA outside annual floodplain ?	no
Q7	v < 10 cm/s ?	no
Q8 1	Permanent inlet?	yes
Q8 2	Intermittent inlet ?	no
Q8 3	Permanent outlet ?	yes
Q8 4	Intermittent outlet?	no
Q9 1	Outlet < one third average width ?	no
Q9 2	Sheet flooding ?	yes
Q10 B	Palustrine ?	no
Q10 D	Riverine tidal ?	no
Q10 E	Estuarine ?	yes
Q11	Fringe or island wetland ?	no
Q12 AB	Dominant veg: forested & needle-leaved evergreen	no
Q12 AC	Dominant veg: forested & broad-leaved evergreen	no
Q12 AD	Dominant veg: forested & needle-leaved deciduous	no
Q12 AE	Dominant veg: forested & broad-leaved deciduous	no
Q12 BB	Dominant veg: Scrub-shrub & needle-leaved evergreen	no
Q12 BC	Dominant veg: Scrub-shrub & broad-leaved evergreen	no
Q12 BD	Dominant veg: Scrub-shrub & needle-leaved deciduous	no
Q12 BE	Dominant veg: Scrub-shrub & broad-leaved deciduous	no
Q12 CA	Dominant veg: Aquatic bed & algal	no
Q12 CB	Dominant veg: Aquatic bed & floating vascular	no
Q12 CC	Dominant veg: Aquatic bed & rooted vascular	no
Q12 DA	Dominant veg: Emergent & persistent	yes
Q12 DB	Dominant veg: Emergent & non-persistent	no
Q13 AA*	Secondary veg: forested & dead	no
Q13 AB*	Secondary veg: forested & needle-leaved evergreen	no
Q13 AC*	Secondary veg: forested & broad-leaved evergreen	no
Q13 AD*	Secondary veg: forested & needle-leaved deciduous	no
Q13 AE*	Secondary veg: forested & broad-leaved deciduous	no
Q13 BA*	Secondary veg: Scrub-shrub & dead	no
Q13 BB*	Secondary veg: Scrub-shrub & needle-leaved evergreen	no
Q13 BC	Secondary veg: Scrub-shrub & broad-leaved evergreen	no
Q13 BD*	Secondary veg: Scrub-shrub & needle-leaved deciduous	no
Q13 BE*	Secondary veg: Scrub-shrub & broad-leaved deciduous	yes
Q13 CA*	Secondary veg: Aquatic bed & algal	no
Q13 CB*	Secondary veg: Aquatic bed & floating vascular	no
Q13 CC*	Secondary veg: Aquatic bed & rooted vascular	no
Q13 DA*	Secondary veg: Emergent & persistent	no
Q13 DB*	Secondary veg: Emergent & non-persistent	no
Q14 1	AA on 25 square foot island?	yes
Q14 2	AA on 2 acre island?	no
Q15 1 A	Vegetation <--> Water = solid form	no
Q15 1 B	Vegetation <--> Water = intermediate form	yes
Q15 1 C	Vegetation <--> Water = checkerboard	no
Q16 2	Channel flow spreading?	yes
Q16 A	Vegetation class = solid	no
Q16 B	Vegetation class = intermediate	yes
Q 16 C	Vegetation class = mosaic	no
Q17	Plant form richness	yes
Q18	Upland <--> Wetland edge irregular?	no
Q19 1 A	Wind shelter?	yes
Q19 1 B	Wind shelter + fetch?	no
Q19 2	Wave protection?	yes
Q19 3	Upland habitat wind shelter?	no
Q20 1	Zone B shaded?	no
Q20 2	Balance sun <--> shade?	no
Q21 A	Subwatershed dominant land cover: forest & scrub?	no
Q21 E	Subwatershed dominant land cover: urban lawn/fill	yes
Q22 1 1	AA contains Channel?	yes
Q22 1 2	AA contains Sinuous channel?	no
Q23	Is the AA Channelized?	yes

# Assessment Area 2T (Tidal restoration) (42 acres) - (with 9/6 revisions)

Question	Summary	Response
Q24 2	Fine mineral soils?	no
Q24 4	Slow percolation in watershed?	yes
Q25 1	Source of inorganic sediment in buffer zone?	yes
Q25 2 A	Primary source of sediment = sheetflow?	no
Q25 2 B*	Primary source of sediment = channel flow?	yes
Q25 3	Wetland stabilizes erosion?	yes
Q26 1	Nutrient source in buffer zone?	no
Q26 2	Primary source of nutrients = sheetflow?	no
Q26 3*	Primary source of nutrients = channel flow?	yes
Q27 1	Toxic source in buffer zone?	no
Q27 2	Primary source of toxics = sheetflow?	no
Q27 3*	Primary source of toxics = channel flow?	yes
Q28	Has AA been Directly altered?	yes
Q29 1	Dense understory edge?	yes
Q29 2	Buffer zone slopes < 5%?	no
Q30	Is AA subject to frequent Human disturbances?	yes
Q31 1	Area of Zone A + Zone B > Zone C?	yes
Q31 2	Area of Zone B > 10% of AA?	yes
Q31 3	Area of Zone B > Zone A?	yes
Q31 4	Area of submergent in Zone B > open water of Zones B + C	yes
Q31 5	Area of Zone A >=10% of Zone B & C?	no
Q31 6 A	Emergent in Zone B = 0% of Zones B & C?	no
Q31 6 B	Emergent in Zone B = 1% - 30% of Zones B & C?	no
Q31 6 C	Emergent in Zone B = 31% - 60% of Zones B & C?	yes
Q31 6 D	Emergent in Zone B = 61% - 99% of Zones B & C?	no
Q31 6 E	Emergent in Zone B = 100% of Zones B & C or not present	no
Q32 A	Spatial Dominant Hydroperiod = perm flooded nontidal?	no
Q32 B	Spatial Dominant Hydroperiod = intermit exposed nontidal?	no
Q32 C	Spatial Dominant Hydroperiod = semiperm flooded nontidal?	no
Q32 D	Spatial Dominant Hydroperiod = seasonally flooded nontidal?	no
Q32 E	Spatial Dominant Hydroperiod = saturated nontidal?	no
Q32 F	Spatial Dominant Hydroperiod = temp flooded nontidal?	no
Q32 G	Spatial Dominant Hydroperiod = intermit flooded nontidal?	no
Q32 H	Spatial Dominant Hydroperiod = artificially flooded nontidal?	no
Q32 I	Spatial Dominant Hydroperiod = regularly flooded tidal?	no
Q32 J	Spatial Dominant Hydroperiod = irregularly exposed tidal?	yes
Q32 K	Spatial Dominant Hydroperiod = irregularly flooded tidal?	no
Q33 A*	Permanent Hydroperiod = perm flooded nontidal?	no
Q33 B*	Permanent Hydroperiod = intermit exposed nontidal?	no
Q33 C*	Permanent Hydroperiod = semiperm flooded nontidal?	no
Q33 D*	Permanent Hydroperiod = seasonally flooded nontidal?	no
Q33 E*	Permanent Hydroperiod = saturated nontidal?	no
Q33 F*	Permanent Hydroperiod = temp flooded nontidal?	no
Q33 G*	Permanent Hydroperiod = intermit flooded nontidal?	no
Q33 H*	Permanent Hydroperiod = artificially flooded nontidal?	no
Q33 I*	Permanent Hydroperiod = regularly flooded tidal?	no
Q33 J*	Permanent Hydroperiod = irregularly exposed tidal?	yes
Q33 K*	Permanent Hydroperiod = irregularly flooded tidal?	no
Q34 1	Local dams?	no
Q34 2	Upstream impoundment?	no
Q34 3 1	Flooding due to downslope impoundment?	no
Q36 1 1	Average width of erect veg in Zone A & B < 20 feet?	no
Q36 1 2	Average width of erect veg in Zones A & B > 500 feet?	yes
Q36 2 3	Avg width of erect veg (d<0.5 height) in Zone B > 500 feet?	yes
Q37	Open water (d.2ft,w.8ft,l>1000ft)?	no
Q38 1	Perm flood or seasonally flood & other <1 mi	yes
Q38 2	(nontidal with erect veg) or 1 acre hardwood & other <0.5	no
Q38 3	(estuarine/marine) or (fw palustrine/laucustrine) & other <	yes
Q38 4	Mudflat or tidal scrub-shrub & other adjacent	yes
Q38 5	Mudflat > 5 acre or emergent veg >5 acre & other adjacent	yes
Q38 6	Agg/early succession or evergr forest>10 acres & other <	no
Q38 7	Semiperm or seas flooded or perm flood/intermit exposed &	yes
Q39	Special habitat features?	yes
Q40 2	Bottom water > 21 degrees C?	no
Q41 1	Peak flow velocity < 10 cm/s?	no
Q41 2	Peak flow velocity > 30 cm/s?	yes
Q42 1 1	>1 acre or 10% of AA: 0<v<1 ft/sec	yes
Q43 A	Dominant Water Depth < 1 inch	no
Q43 B	1 in < dominant water depth < 4 inches	no
Q43 C	5 in < dwd < 8 inches	no
Q43 D	9 in dominant water depth < 20 inches	no
Q43 E	21 in dominant water depth < 39 inches	no
Q43 F	40 in < dominant water depth < 59 inches	yes
Q43 G	5 ft < dominant water depth < 6.5 feet	no
Q43 H	6.5 feet < dominant water depth < 26 feet	no
Q43 I	Dominant water depth > 26 feet	no
Q44 A*	Secondary Water Depth < 1 inch	yes
Q44 B*	1 in < secondary water depth < 4 inches	yes
Q44 C*	5 in < secondary water depth < 8 inches	no
Q44 D*	9 in < secondary water depth < 20 inches	yes
Q44 E*	21 in < secondary water depth < 39 inches	yes
Q44 F*	40 in < secondary water depth < 59 inches	yes
Q44 G*	5 feet < secondary water depth < 6.5 feet	no
Q44 H*	6.5 feet < secondary water depth < 26 feet	no
Q44 I*	Secondary water depth > 26 feet	yes
Q45 B	Substrate: Muck?	no

**Assessment Area 2T (Tidal restoration) (42 acres) - (with 9/6 revisions)**

Question	Summary	Response
Q45 C	Substrate: peat ?	yes
Q45 D	Substrate: sand ?	no
Q45 A	Substrate: mud ?	no
Q45 E	Substrate: cobble-gravel ?	no
Q45 F	Substrate: rubble ?	no
Q46 B	Physical Habitat Interspersion = intermediate	yes
Q46 C	Physical Habitat Interspersion = mosaic	no
Q48 A	Salinity < 0.5 ppt	no
Q49 1 1	20%-80% Pools ?	yes
Q49 1 2	Riffles ?	no
Q49 2	Fish cover ?	yes
Q49 3	Carp prevalent in AA ?	no
Q50	Plants: waterfowl value ?	yes
Q51 2	Plant productivity > 1500 g/sq.m/yr	yes
Q52 1	Freshwater Invertebrate Density > 500 sq. ft.	no
Q53 1	Tidal flat Invertebrate density = "H"	no
Q55 1	Suspended Solids < 25 mg/l	yes
Q55 3	Suspended Solids > 1200 mg/l	no
Q55 4	Suspended Solids > 4000 mg/l	no
Q61	DO limit to fish ?	yes
Q63 1	Floodpeaks: inlet > outlet ?	no
Q63 2	Surface water inflows > outflows ?	no
Q64	Total Suspended Solids at inlet > outlet ?	no
Q65 3	Warm Freshwater Fish present ?	no
Q66 1 1	Group 1 Waterfowl Breeding present ?	yes
Q66 2 1	Waterfowl Group 1 Mig/Wint present ?	yes
Q66 2 3	Black Duck Mig/Wint present ?	yes
Q66 2 5	Mergansers Mig/Wint present ?	yes
Q66 2 7	Bufflehead/Goldeneye Mig/Wint present ?	no
Q66 2 10	Geese Mig/Wint present ?	yes
Q98	Presence of <i>Eleocharis parvula</i>	yes
Q99	Proximity to public transportation	yes

	WQ	JFF	SHB	WAB	WFL	PSS	FFAS	REC	CON
Attribute Sum for Social Significance							0.333333	0.473684	0
Attribute Sums	82.84	38.836	110	149	235	91		0.807018	
Normalized Sum	0.637230769	0.382056	1.29717	1.330357	1.129808	0.936214		0.400009	
Attribute Totals	63.72307692	38.20561	129.717	133.0357	112.9808	93.6214		40.00087	

Projected IVA Scores Empire Tract Alternative E - 276 Brackish/130 Freshwater (with 9/6 revisions)																					
AA	Area	WQ		JFF		SHB		WAB		WFL		PSS		FFAS		REC		CON		SS	
		Pts/ac.	Score	Pts/ac.	Score	Pts/ac.	Score	Pts/ac.	Score	Pts/ac.	Score	Pts/ac.	Score	Pts/ac.	Score	Pts/ac.	Score	Pts/ac.	Score	Pts/ac.	Score
2EB (frsh)	130.0	85.9	11187.0	48.6	6318.0	87.7	11401.0	102.1	13273.0	85.0	11050.0	83.3	10829.0	0.33	42.9	0.32	41.6	0.00	0.0	32.2	4186.0
2EA1G/F/H	234.0	47.9	11208.8	48.6	11372.4	85.9	20100.6	87.1	20381.4	81.5	19071.0	80.2	14086.8	0.33	77.2	0.42	98.3	0.00	0.0	37.4	8751.8
2N	15.0	45.0	675.0	8.0	120.0	48.0	720.0	85.0	975.0	46.0	690.0	56.0	840.0	0.33	4.95	0.18	2.40	0.0	0.00	24.0	360.0
2T	42.0	83.7	2675.4	38.2	1804.4	129.7	5447.4	133.0	5586.0	113.0	4746.0	93.8	3931.2	0.33	0.57	0.47	19.74	0.0	0.00	40.0	1680.0
	421.0		25726.0		18414.8		37669.0		40215.4		35557.0		29687.0		125.6		162.0		0.0		14977.6
Sum	-159.0		-9098.0		13748.8		10079.0		7828.4		3348.0		-3344.0		-43.0		78.3		0.0		2697.6
ratio			0.74		3.43		1.37		1.24		1.10		0.90		0.75		1.93		#DIV/0!		1.22